MICHIGAN MANUFACTURER AND FINANCIAL RECORD

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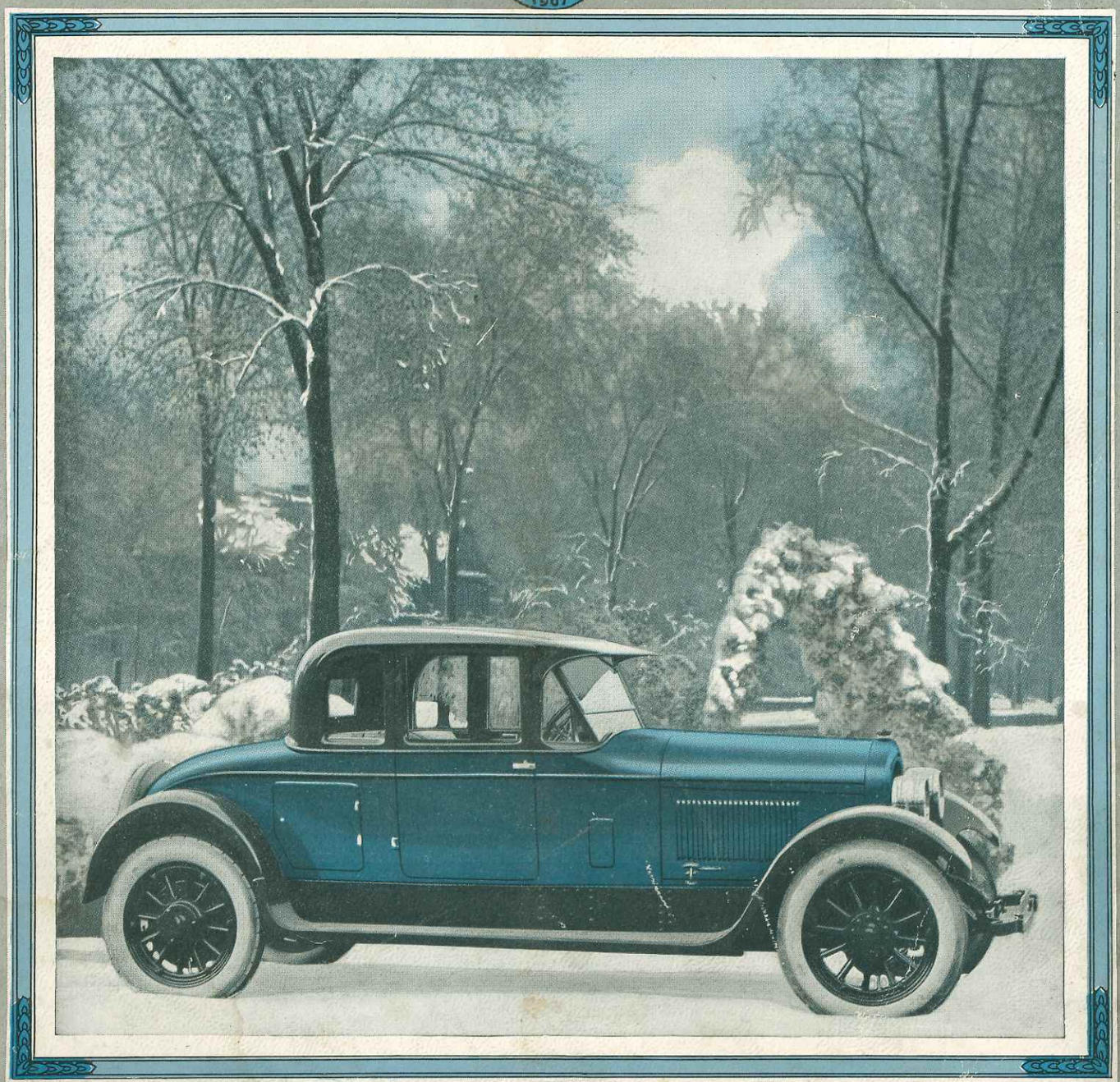

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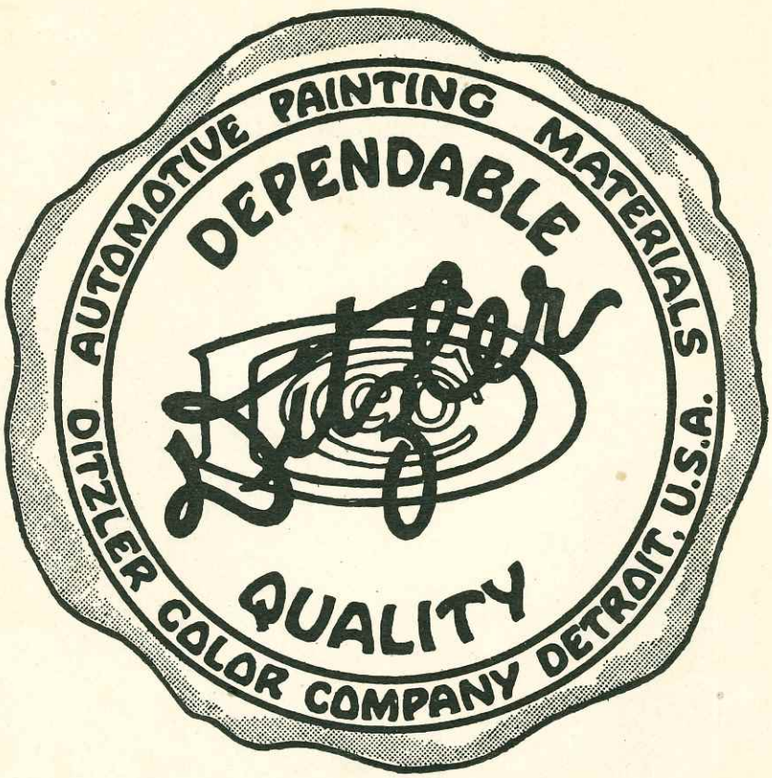

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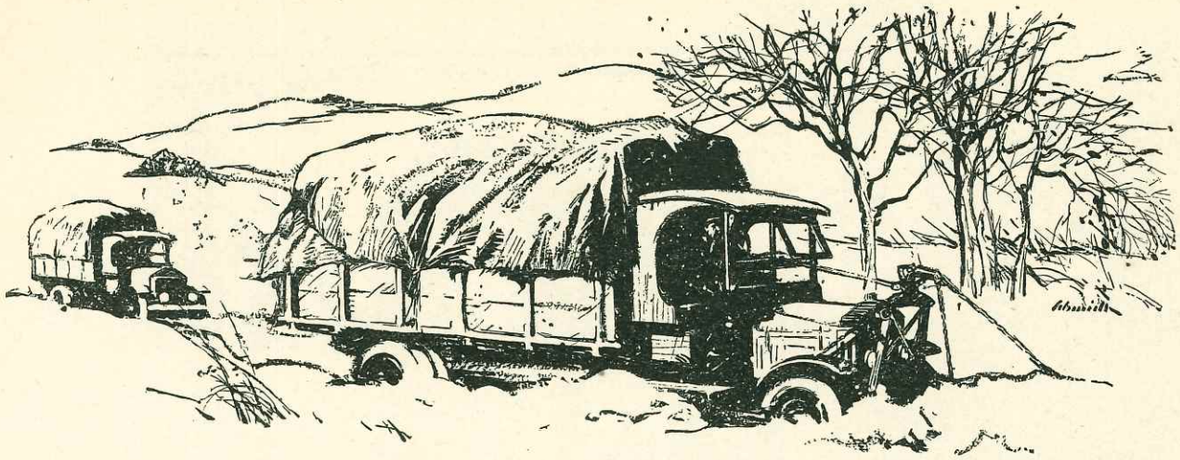
The car is long and low, with deep seats and abundant leg room. New springs—underslung in the rear—add immeasurably to the comfort of riding.

With its semi-drum type head lamps, tasteful hardware and flowing body lines, the Type-B Sedan will distinctly appeal to those who demand beauty as well as utility in the car they drive.

The price is $1250 f. o. b. Detroit



These Pierce-Arrows *plow* 70 *miles* to reach snow-bound mountain towns

BLIZZARDS rage. Snow clogs the Berkshire roads—but, roads or no roads, food must reach the thousands of families living in the mountains.

And so, battling mile after mile of drifts, eighteen powerful Pierce-Arrow trucks break the blockade.

One thousand tons of food a week is their quota. They deliver it 52 weeks of the year. Some of these trucks are eight years old; some have traveled several hundred thousand miles. But they perform as reliably as their more modern, more powerful mates.

A letter from the owner of the fleet, Fogarty & Hendrickson, Inc., of Springfield, Mass., says:

"We doubt whether any fleet of trucks, anywhere, is given harder work to do, day in and day out, than these Pierce-Arrows of ours. In winter we are forced a great many times to plow our own roads through bleak, mountainous country for a distance sometimes of 70 miles. As an example, we enclose a photograph of one of our trucks equipped with a plow, ready for a 58-mile run over the Berkshire Mountains."

* * *

Such stamina, such dependability, lowers trucking costs in any line of business. Any Pierce-Arrow distributor will show you, without obligation, exactly what the silent, powerful Pierce-Arrow Dual-Valve Motor Truck will save in your business.

Chassis Sizes: 2-ton, 3-ton, 4-ton, 5-ton, 6-ton, 7½-ton
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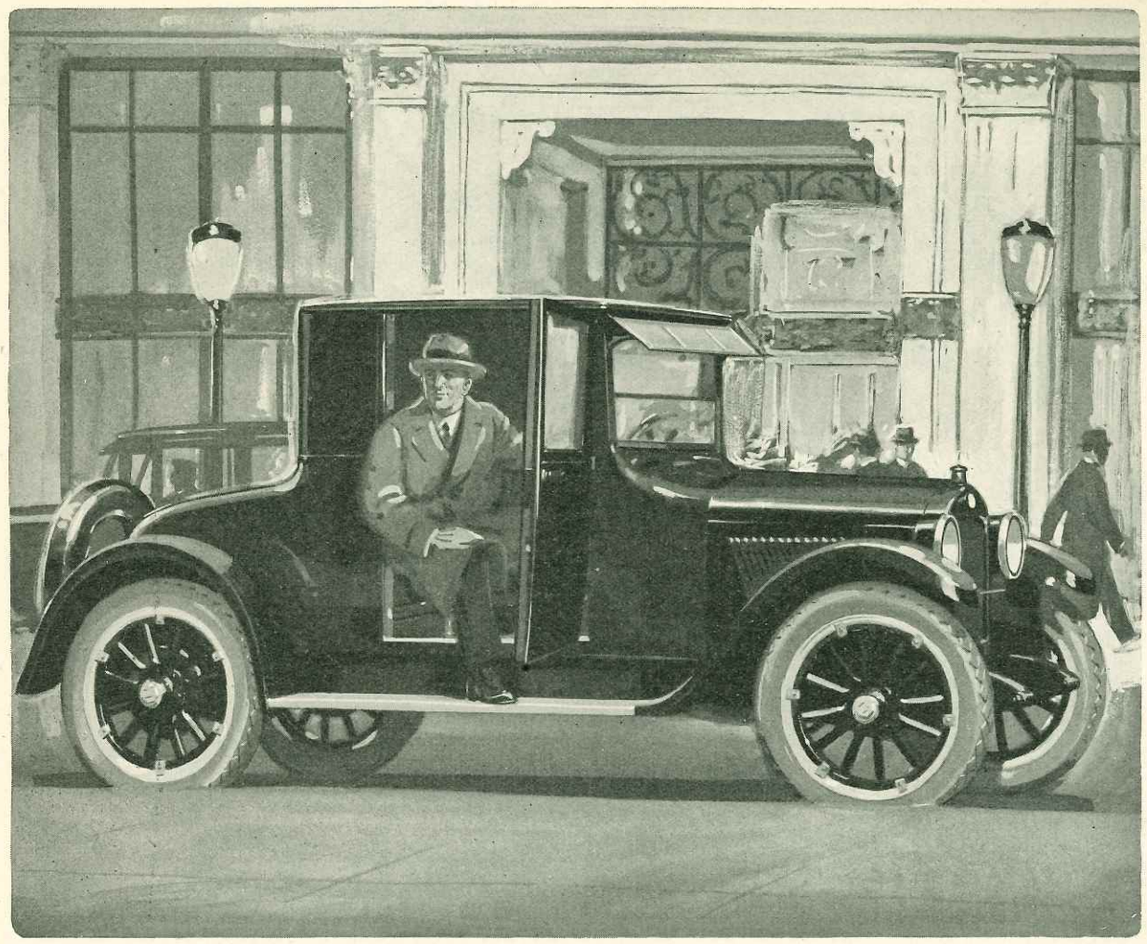
You can buy Pierce-Arrow Trucks on liberal terms. For details ask us.

When in Buffalo visit the Pierce-Arrow factory. Capable guides will show you how Pierce-Arrow Trucks are built.

Pierce Arrow

Dual Valve
HEAVY DUTY MOTOR TRUCKS



A business man's personal car right down to the ground—alive with the efficiency and the vigor so highly prized by men of affairs.

No car could possibly serve better in the continuous grind of a man's daily activities than this Hupmobile Two-passenger Coupe.

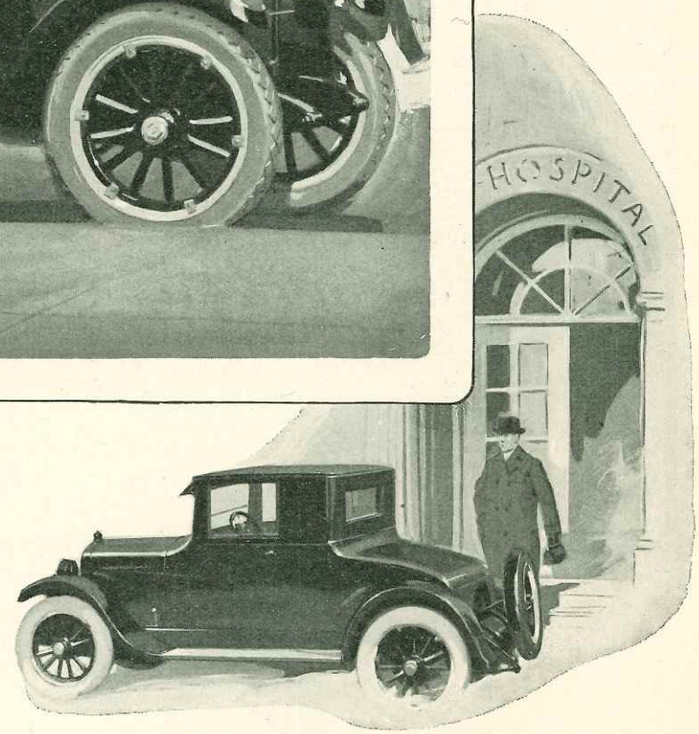
Built for precisely the kind of continuous and exacting service that an energetic man demands.

Built so well that it pays for itself over and over again in the time and the effort it saves every day of the year.

Fresh and ready each morning for the new day's work—rain or shine, winter and summer alike.

Already in use by large numbers of salesmen, doctors, contractors, and hundreds of others who thank their lucky stars for such a car as this.

Men who need a car in their daily work—and who know how much they need it—can do no better than to shift their burden to this handsome, thrifty Hupmobile.



The Car for

Salesmen Doctors Contractors

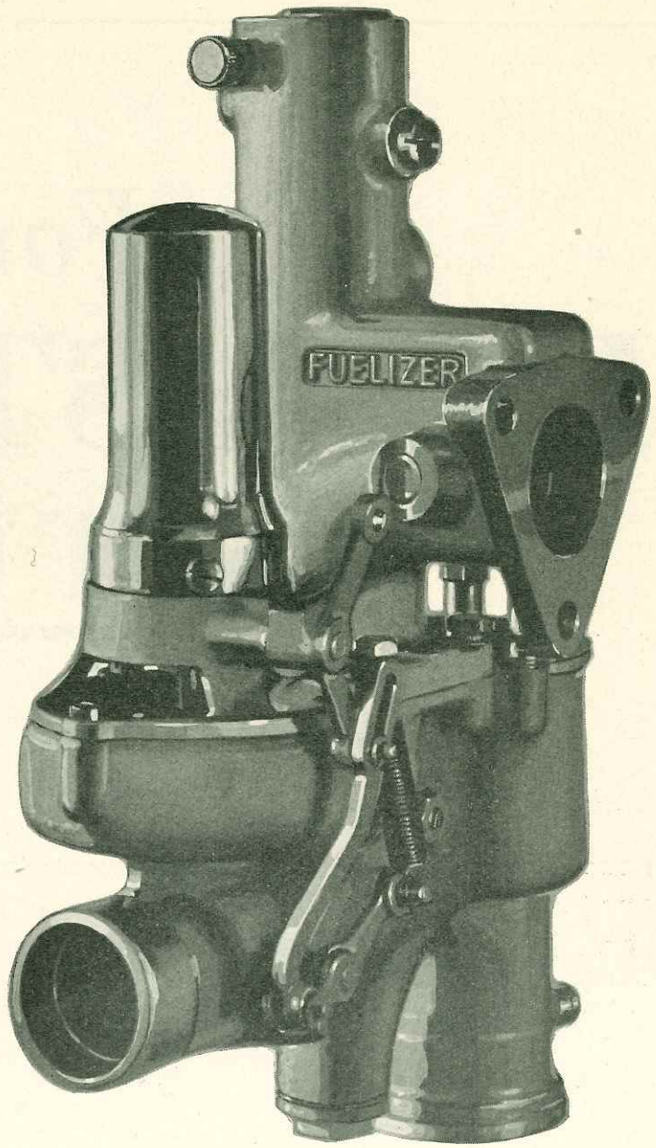
and all those thousands of men whose primary need is individual transportation

Doors 32 inches wide—windows adjustable—windshield cleaner—windshield adjustable for ventilation.

Ample room under rear deck for a couple of husky grips or sample cases. Space inside the car, back of the seat, for smaller sample cases, portfolios, physician's kit, and so on.

The New **Hupmobile**

Only Packard owners Know



If you analyzed the contentment of the Packard owner you would have to give a big share of the credit to the exclusive Packard Fuelizer ▱ ▱ It's a noticeable fact that you never hear a Packard Single-Six or a Straight-Eight choke or sputter, you never see one balk at the get-away, you never find one hesitating when you "step on it" ▱ ▱ ▱ You can thank the Fuelizer for all that and much more. For if there is anything that adds to comfort more than quick starting in cold weather, or prompt acceleration, it would be hard to find ▱ ▱ ▱ So credit the Fuelizer with a big job. Only the Packard owner knows or can know how big that job is, or how much it adds to the satisfaction of motoring; but when you buy your Packard you can expect your Fuelizer to do these things: (1) Reduce the warming-up period in cold weather; (2) add greatly to the speed of acceleration; (3) save fuel; (4) diminish formation of carbon on spark plugs and cylinder heads; (5) practically eliminate gumming of valves and, (6) minimize dilution of crankcase oil.

Four-wheel service brakes; 2 additional rear wheel brakes—a total of 6—on all Packard cars

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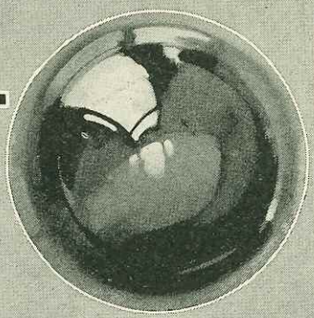


A ball making plant of unprecedented size—machinery, tools, and standards of unprecedented accuracy—production processes and facilities really unique—a keen conception of the properties of the truly flawless ball—

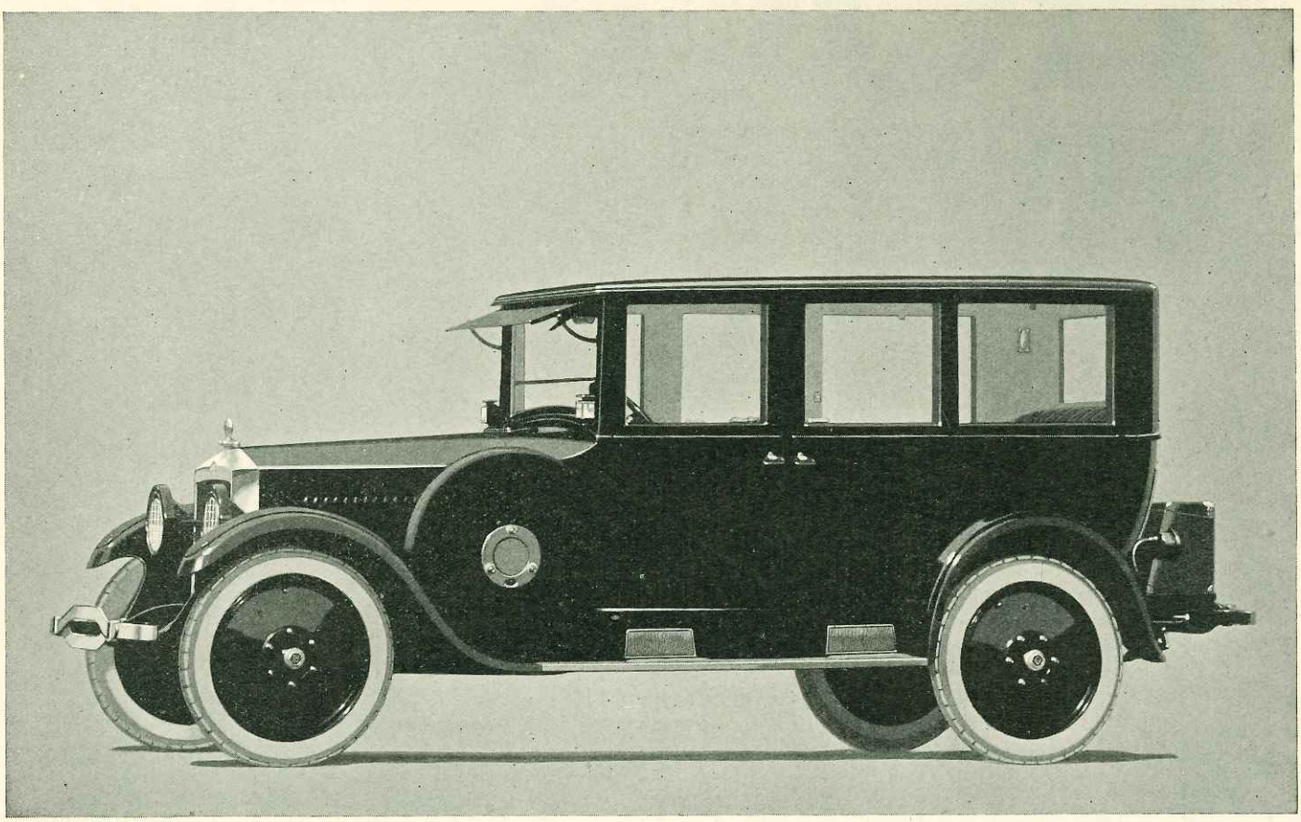
Here are four reasons why the demand for Hoover Steel Balls has always exceeded the supply.

HOOVER STEEL BALL CO.
ANN ARBOR, MICH.

(1)

View of the main Hoover plant at Ann Arbor, Mich., showing the extensive manufacturing facilities of the company. Production includes balls of all industrial metals—steel, brass, copper, aluminum, Monel Metal, stainless steel, etc.

STUDEBAKER



THE SERIES 24 STUDEBAKER BIG-SIX SEDAN $2685

Partial List of Equipment of Big-Six Sedan

Two extra disc wheels complete with cord tires, tubes and tire covers. Handsome nickel-plated bumpers, front and rear. Commodious trunk. Automatic windshield cleaner, rear-view mirror and glare-proof, glass visor.

Courtesy light, coach lamps, dome and rear corner reading lights and combination stop-and-tail light. Mo-tometer with lock and ornamental radiator cap.

Aluminum-bound running boards with corrugated rubber mats and step pads. Aluminum kick plates. Heater, vanity case, smoking set and flower vase. Snubbers. Jeweled eight-day clock. Upholstery finest quality Chase mohair, double weave.

IT IS becoming increasingly evident among discriminating buyers in this country and abroad that it is extravagance to pay more than the price of the Studebaker Big-Six Sedan to obtain the utmost motor car satisfaction.

Concentration of years of experience and tremendous manufacturing facilities upon the building of six-cylinder cars enables Studebaker to offer the Big-Six at a price that makes it the dominating value of the fine car market.

The appearance of the Big-Six carries distinction. Lines are impressive and in enduring good taste, with no trace of freaks or frills of design.

The roomy seven-passenger body is mounted on a seven-passenger chassis that is amply powered by the Big-Six motor. Called upon to negotiate the steepest hills, the roughest roads, to slip through the thick of traffic or show its heels on the straightaway, the Big-Six responds with ease and promptness that are most satisfying.

Everything that contributes to the riding comfort and convenience of the passengers has been provided. The purchase price includes many unusual items such as the two extra disc wheels complete with cord tires, tubes and tire covers; handsome, nickel-plated bumpers, front and rear; and enameled steel trunk equipped with two suitcases and hat box.

Studebaker has been building quality vehicles for 72 years.

1924 MODELS AND PRICES—*f. o. b. factory*		
LIGHT-SIX *5-Pass., 112" W. B., 40 H. P.*	SPECIAL-SIX *5-Pass., 119" W. B., 50 H. P.*	BIG-SIX *7-Pass., 126" W. B., 60 H. P.*
Touring . . . . . $ 995	Touring $1350	Touring $1750
Roadster (3-Pass.) . 975	Roadster (2-Pass.) . 1325	Speedster (5-Pass.) . 1835
Coupe-Road. (2-Pass.) 1195	Coupe (5-Pass.) . . 1895	Coupe (5-Pass.) . . 2495
Coupe (5-Pass.) . . 1395	Sedan 1985	Sedan 2685
Sedan 1485		

STUDEBAKER

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FISHER BODY CORPORATION, DETROIT
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There is a giant who works tirelessly to lighten the labor on the American farm, to make the farm more productive, and farming more profitable.

He is personified by the vast resources of the Ford organization, whose herculean labors are directed primarily toward lowering the cost and increasing the efficiency of Ford Cars, Ford Trucks, and the Fordson Tractor.

The larger this giant has grown the lower the prices of Ford products have fallen, and the more valuable they have become from the investment standpoint as farm equipment.

To the farmer this has meant lower and lower fai m costs, better arrangement of farming activities, more money crops, all with less effort and therefore with greater net profit—proof enough that it is to his interest to standardize on Ford equipment.

FORD CARS WILL BE EXHIBITED AT THE SHOW, AND AT ALL DEALERS' SHOWROOMS DURING THE DETROIT AUTOMOBILE SHOW.

Ford Motor Company

CARS · TRUCKS · TRACTORS

Ask Any Ford Dealer

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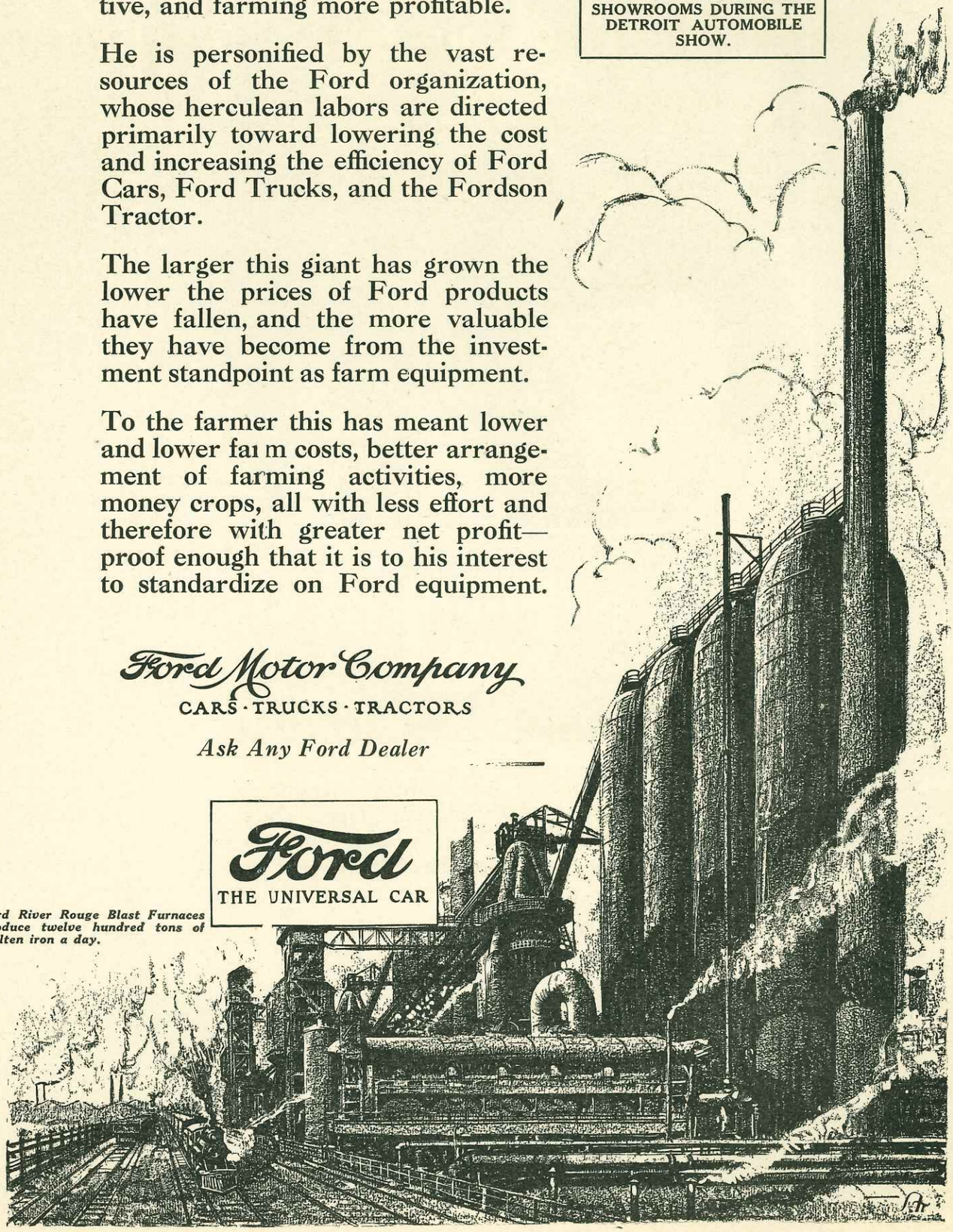
THE UNIVERSAL CAR



Ford River Rouge Blast Furnaces produce twelve hundred tons of molten iron a day.

MICHIGAN MANUFACTURER AND FINANCIAL RECORD

Modern Motor Car Developments

Super-charger, Power Brakes and Automatic Gear Shift Are Among Improvements to Be Looked For

By J. H. W. KERSTON, M. E.
Associate Editor, Michigan Manufacturer and Financial Record.

ANY AUTOMOBILE show is, of course, primarily a sales event. It is only incidentally that it provides an opportunity for engineers to observe the arrival of new schemes or the abandonment of old ones. It is evident that the main object and this incidental opportunity will not always be equally well served at once and at the same time, and what may be an excellent show from the salesman's point of view may be disappointing to the technical man. The 1924 national show was decidedly a salesman's show, as compared with the preceding years, when ideas were released in a flood, and nearly every display presented something of interest.

Commercially, the present situation should be all to the good, for stabilized production is what is necessary for the country's trade during the next few years. However, the continued demand for price reduction with increased value in body comforts and equipment means the shelving of schemes for power braking, new transmissions, or new power units which may react unfavorably on sales in three or four years' time. New roads, increased number of motor car users, new transport laws, etc., will create a need for more efficient methods of starting, stopping and control while in motion. At the moment not only are new ideas held back in the design stage, but the money available for research, drawing office, laboratory, test bench and racing track is, perforce, limited.

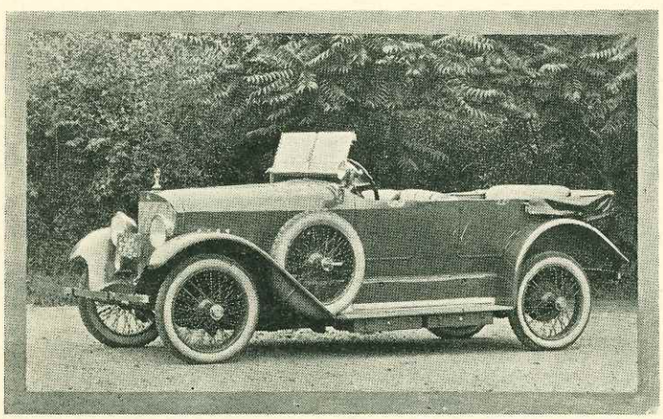
Supply is controlled by demand, and if the present public demand is for greater personal comforts, rather than improved mechanical efficiency, the automobile engineer may take this as a compliment to himself. Springing, acceleration, braking, etc., have persumably advanced more rapidly than have the designs of body and equipment. It is, however, necessary that the breathing space be utilized in experimental work, in order that the industry may be ready for the coming change in demand. In the years to come greater calls will be made upon the mechanism of road vehicles to meet the increased loads imposed, greater speeds, and the ever growing demand for comfort, with its implied extra stresses.

The fact that the front brakes loomed so largely at the show was probably due to the fact that there was little else of importance to provoke interest. If some of the novelties, which are known to be in an advanced stage, could have been included in the exhibits, this would have provided more interest, not only to the motor car engineer, but also to a large portion of the visitors. The public generally now has a keen mechanical sense and welcomes the opportunity of studying new mechanisms, although these may not actually be produced in large quantities.

It is necessary for the progress of the motor car industry to insure that progress on the mechanical side is not stultified. The interest shown by motorists in the technical details will not be maintained by restaging different shapes, styles and colors of bodies on chassis which have been exhibited many times before. Although change of itself, unless accompanied by definite improvement, is strongly to be deprecated, yet motor car design is still in a relatively primitive stage, and necessarily moves more rapidly than other branches of engineering. It is desirable that those advances which have already been made should continue as far as possible without lengthy periods of stagnation, and it is to be hoped a year or two's prosperity on existing models will be utilized to develop designs that will approach much nearer to perfection than the majority of those current at the moment.

Of extraordinary interest are, therefore, a few of the most striking European creations of modern motor cars, as they invariably indicate the trend of development at home. Super-charging is a subject of intense interest, and is one to which a very great deal of attention was devoted during the war. At that time the problem was to increase the efficiency of aeroplane engines at high altitude, and it seemed probable that some means of filling the cylinders with more gas than was possible under pressure of the atmosphere, combined with the suction created by the pistons, would have a very great effect. Actually a number of mechanical devices were evolved, and were

The European Type of Light Car



A Mercedes 10/40 H. P. Touring Car Equipped with Super-Charger.

extremely successful, so much in fact that it was realized that behind the idea of supercharging for aeroplanes lay a field of research well worth exploring.

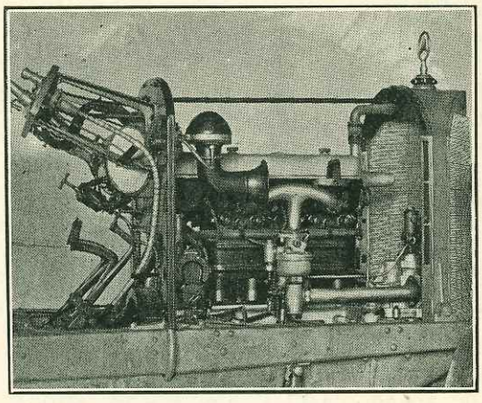
Though super-charging in America has not been considered extensively, the German Mercedes engineers, who are admittedly among the most brilliant in the automobile industry, have devoted the past ten years to the perfection of a system of super-charging, details of which have hitherto been lacking and, indeed, suppressed.

From the crude patents of the first internal combustion engine in the world, taken out in 1883 by Gottlieb Daimler, founder of the Mercedes Company, there emerges today a magnificent product worthy of the forty years spent in constant engineering research and improvement.

Briefly, the object of a super-charger is completely to fill the cylinders with gaseous mixture at high engine speeds, for it is a very difficult matter to insure that all cylinders be completely filled at such speeds. It is largely owing to this problem that high-efficiency engines, both for automobile and aeronautical work, have lately been developed with a multiplicity of overhead valves and complex carburetion systems, employing several carburetters. The super-charger is another method of attaining the desired results since a blower is utilized to force air through the carburetter and so deliver the mixture under pressure to the cylinders.

Mercedes racing cars, fitted with super-chargers, took part in the Targa Florio Race in Sicily last year, and gave a good account in the Indianapolis Race. As the result of many years' experimental research, the 10/40 h. p. car has made its appearance last year as a standard production. A few of these chassis arrived recently in this country and this latest example of the most advanced automobile design has been subjected to exhaustive tests and trials.

Before dealing with the super-charger, it will be well to review some of the outstanding features of this car, so that the results may be properly appreciated. The engine is a four-cylinder block, built up from steel forgings, welded together, the bore and stroke are 3 3/16" by 5 1/8", a total displacement of but 163 cubic inches, yielding 40 h. p. without and 66 h. p. with the super-charger. Two overhead valves per cylinder, actuated by an overhead camshaft, are employed, and driven through bevel gears and a vertical shaft at the rear end of the engine. Lubrication is forced throughout by a series of piston pumps, feeding oil under pressure to all bearings and replenishing constantly from a fresh oil reservoir, located on the dash.



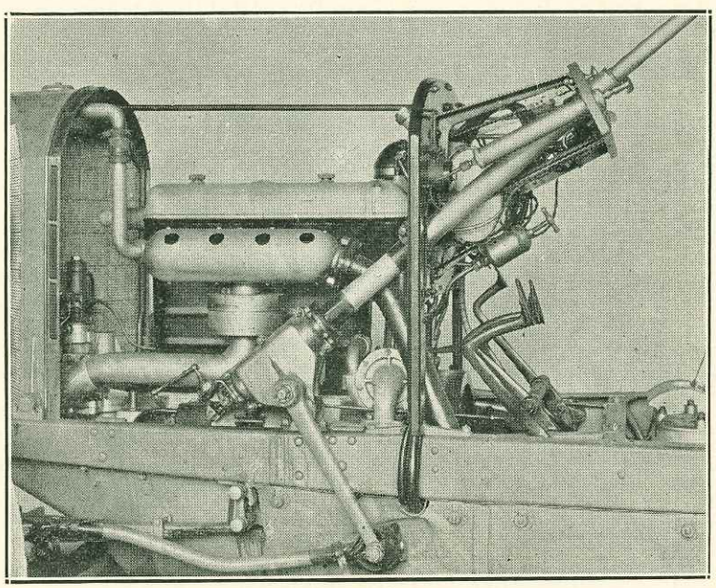
Off-side of the 10-40 h. p. super-charger engine. The super-charger may partly be seen behind the radiator with the large air suction and smaller air delivery pipes.

Directly in front of the engine is the super-charger. A plate clutch and bevel gears, mounted on the front end of the crankshaft, enclosed in an aluminum housing, form the drive for the air-blower, driven by a vertical spindle. A large brass muff on the exhaust pipe has beneath it a circular air intake provided with shutters to regulate the air temperature by hand control from the instrument board. From this air intake run two pipes, the smaller passing between the cylinders direct to the carburetter, while the larger one leads to the blower. The delivery pipe from the blower to the carburetter is of smaller diameter. The normal air inlet pipe has in it a butterfly throttle at the point where it joins the carburetter.

On the top of the blower is a small bronze casing forming a chamber into which the spindle of the blower projects and carries a small impeller for the purpose of regulating the fuel supply. The main tank at the rear (of extraordinary large capacity) is under pressure from a small air pump, driven from the camshaft, and the fuel supply pipe leads the gasoline to the small impeller chamber, whence normally it flows under the ordinary tank pressure through a filter to the carburetter, which it enters through another small filter.

Such, in brief, are the constructional details of the super-charger; it is brought into use merely by an additional movement of the accelerator pedal. The action of fully depressing the pedal engages the small multi-disc clutch, and the air impeller immediately starts to rotate at high speed. At the same time the movement of the accelerator pedal also closes the butterfly valve in the normal air intake, so that the compressed air from the blower alone supplies the carburetter. Additional fuel is also supplied by the action of the small impeller in the fuel chamber above the blower, the action of the two being so proportioned that the

Super-Charger Mechanism



This shows the exhaust side of a 10/40 horsepower, super-charger engine mounted in a Mercedes 1923 chassis. The super-charger is mounted on the front of the crankcase and the air intake and delivery pipes are shown.

fuel supply is maintained at the correct level.

It is recommended that the super-charger should not be brought into use below a speed of 35 m. p. h. on top, or 25 m. p. h. on third gear. To depress the accelerator to its fullest extent is to change the character of the car completely. From a normal, docile car it becomes a greyhound. There is a momentary hestitation as the super-charger takes up its work, and the mixture varies slightly; and then with a slight hissing sound, due to the high velocity of the air and the action of the blower, the car leaps forward with almost violent acceleration.

Several tests on Brooklands race track made some time ago, gave the following interesting results. With four passengers, a speed of sixty m. p. h. was attained without employing the super-charger. With the accelerator fully depressed, the effect of the super-charger was to increase the speed to 66.4 m. p. h. In view of the wind resistance offered by the rough test body with high wind screen, this was undoubtedly a striking performance.

Acceleration tests from 10 to 30 m. p. h. were made in 5 1/5 seconds, an amazing performance largely due to the influence of the super-charger. From a standing start, including switching on the ignition, starting the engine, engaging the gears, and getting away, it took but 16 seconds to run up to a speed of 40 m. p. h.

With two up a speed of 73.77 m. p. h. was recorded, a figure which is only to be attained by high-powered sporting or purely racing cars.

The sound from the super-charger is by no means unpleasant, and would probably pass unnoticed by observers not actually in the car. Of the efficacy of the super-charger, however, there can be no possible doubt and, although the car is so lively as to render it seldom necessary, there are, nevertheless, occasions when the great reserve of power available may be extremely useful. It is, for example, possible on a good road to use the super-charger momentarily to run up to a high speed, when the car may be kept at that speed merely on the ordinary induction system. By this means it is possible to maintain a very high average without at any time reaching the maximum speed of which the car is capable.

It will be gathered from the foregoing that the chassis is in every way a high-grade production, as indeed it should be, considering the Mercedes creed, that full appreciation of the brilliancy of these creations comes only after the Mercedes has been driven 100,000 miles and more. A smaller chassis on similar lines, embodying the super-charger, and known as the 6-25 h. p. model (rated at 11.9 h. p.), will also shortly make its appearance, and in the case of this smaller car it is natural to expect that the benefit of the super-charger will be even more pronounced.

Although the Mercedes is the first to employ the super-charger as a standard production, it is known that other European manufacturers are experimenting seriously with similar devices; in the opinion of many engineers the future will see the super-charger developed considerably, so that it is not too much to say that this Mercedes production marks an epoch in automobile history.

In a number of fast European cars, equipped with front and rear brakes, a "Servo" mechanism is employed to actuate all brakes simultaneously. A "Servo" brake is an ingenious power mechanism, using the momentum of the car in applying the brakes, thus relieving the driver of any muscular exertion in stopping a heavy car. One of the best examples is furnished on the 45 h. p. Renault chassis. These cars are equipped with two independent brake sets, the hand brake acting direct on the driving wheels, while the foot brake exerts its retarding effort on all four wheels.

The braking system operates in both cases with internal expanding shoes, separated by a cam. The rear wheel brakes are actuated in a conventional manner, and are equalized by a differential compensator. The front brakes are operated by two steel cables, and equalized by a differential compensator under the floor boards. It is noteworthy that in this system the braking effort of each wheel is always regulated by the actual road grip of the tire.

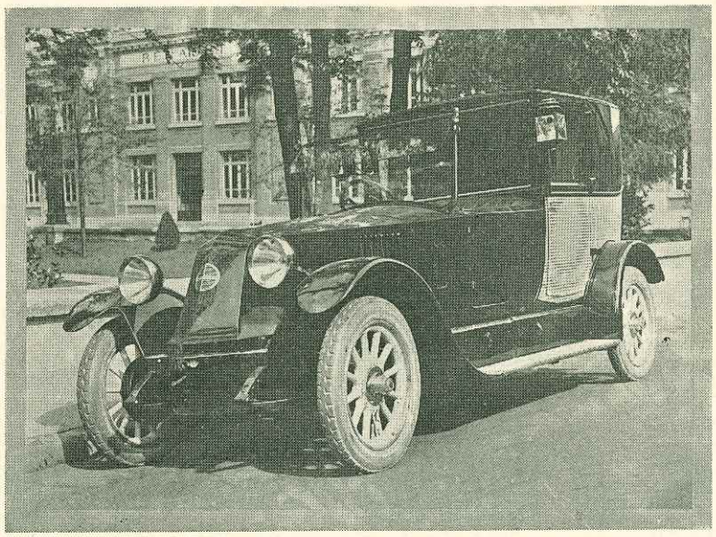
The main propeller shaft drives through a train of gears a second shaft at right angles to it, which carries a plate; this plate forms the driving member of a clutch, and rotates strictly in accordance with the speed of the car. The driven plate is moved against this and a friction disc by the rotation of the worm and nut which forms the lever to which the foot brake is connected. On depressing the pedal the driven plate is pushed against the drive member of the clutch, causing it to rotate in the same direction, with more or less force, depending upon the pressure from the pedal, and thus actuating all brakes simultaneously.

The "Servo" brake moves a differential compensator, in order to equalize the retarding effort on both front and back wheels.

Various forms of front brakes and power mechanisms have been evolved, the Perrot, which is handled in America through the Bendix-Eclipse Company, probably being the

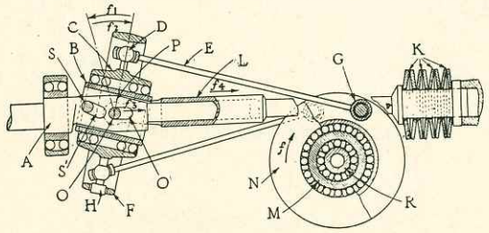
(Continued on Page 66)

The Trend of European Design



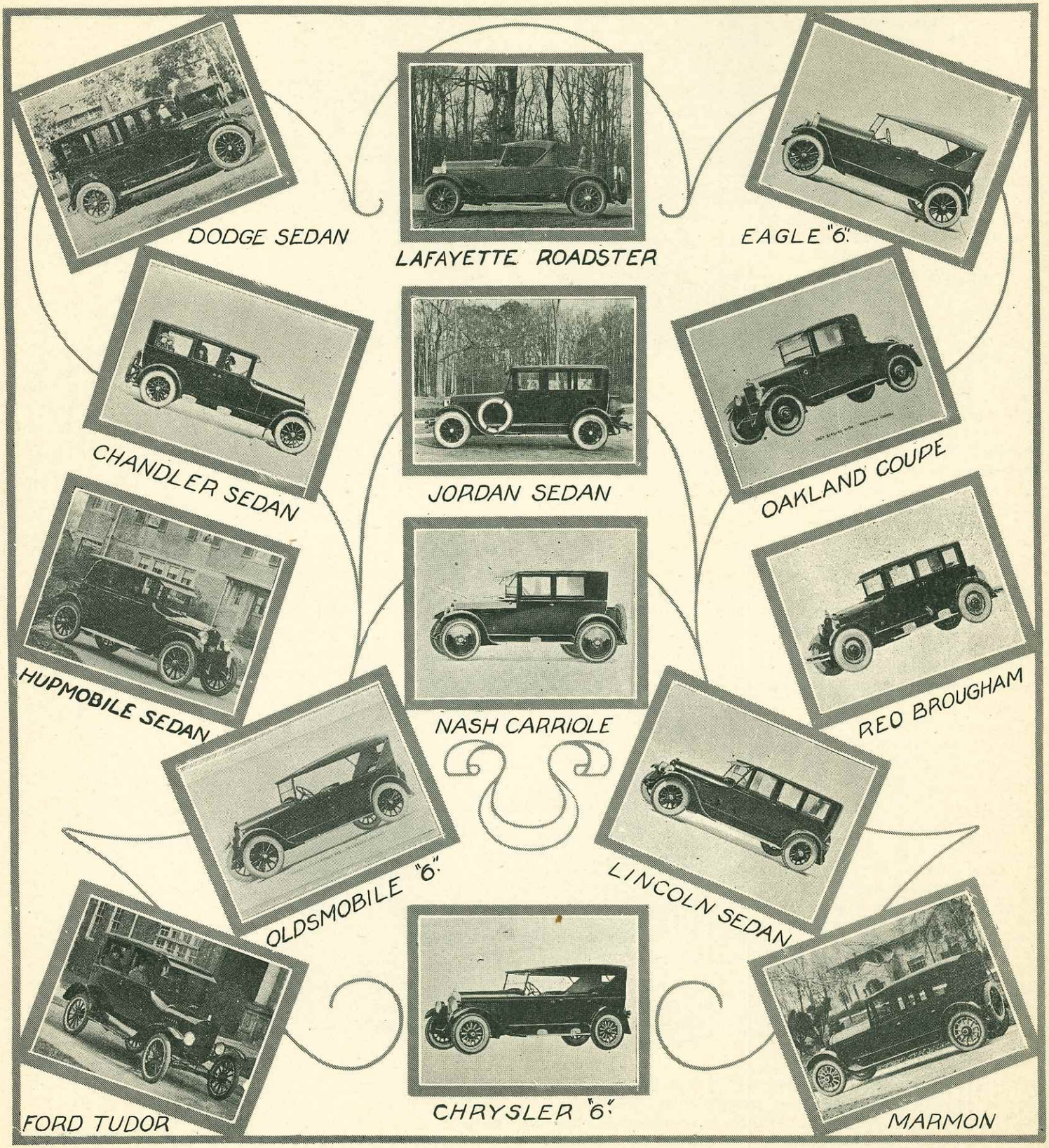
A Renault 45 H. P. Town Car.

The Automatic Gear-Shift

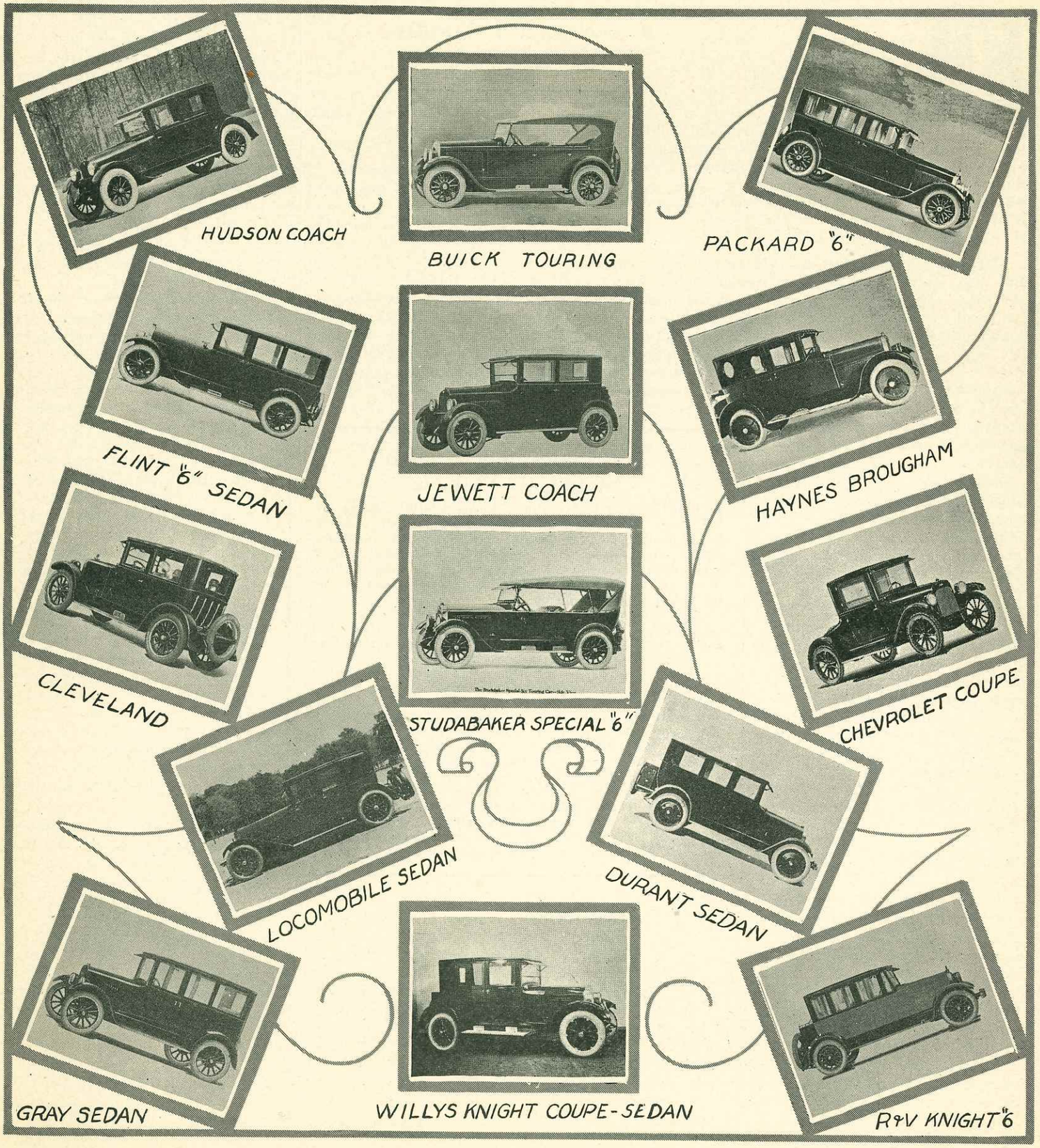


This diagram shows the operation and principles of the De Lavaud Automatic Variable Transmission.

Some of the Models to be



Seen at the Auto Show



Scanning the Automotive Horizon

Heads of Industry See Bright Future for 1924; Economic Factors in Auto Sales Are Favorable

By KENNETH D. CASSIDY
Associate Editor, Michigan Manufacturer and Financial Record

THE AUTOMOBILE is seen by leaders of the industry as coming into a greater era of popularity than ever before, a fact which will bring it more intimately into the commercial and social life of the nation. Mechanical improvement and beauty of body design have resulted in the present-day automotive units, which are at once the personification of luxurious comfort and the foundation of utility and efficiency. The appetite of the public has been whetted for possessive ownership. This fact is seen as the basis of hope for the increasing prosperity of the industry in the future.

The proud record of production achievement which marked the 1923 automotive year, has been placed upon the shelf of the past. The eyes of the world and the minds of commercial leaders are all concentrated on the future. Automobile manufacturers with their loins girded for action in the form of small inventories and their arms in readiness, as witnessed by enlarged plants and new, efficient equipment, have swung into the new year, ready to wrestle with the problems which lie before them. The song of battle is one of suppressed confidence and optimism.

Predictions by the leaders in the industry have been based, not on mere guesswork nor on individual wishes, but on comprehensive surveys of general conditions both in this country and in Europe. Careful study and consideration have been given all factors which influence demand and, hence, production. All classes of people, all parts of the world and all trades and industries, as well as political conditions, have been considered and their probable trend or tendency noted. Predictions have followed which carry a note of conservatism but which clearly indicate the belief in a prosperous future for 1924.

"General conditions throughout the country a year ago were no more attractive than they are today," says Charles D. Hastings, president of the Hupp Motor Car Corporation. "The Motor car industry has become too well established and too stabilized ever to do other than reflect the condition of affairs throughout the country. In the light of what happened in 1923 in several lines of business, it seems fairly safe to hazard the guess that 1924 will, in many respects, prove to be even better for the established companies in most lines of endeavor.

"As in 1923, the extent of activities next fall will depend largely on the crop situation, crop prices and, also, the political outlook. If these are favorable, there is every reason to believe that the year will be even better than last. Should the railroads further improve their service and the farm situation be favorable, there should certainly be a better business this year than ever before.

"We believe that these conditions will be favorable and, in spite of the past year being by far the greatest production year in the history of our company, our schedule for 1924 calls for a 20 per cent increase over 1923, or 50,000 cars. This means capacity production for all our plants for the entire year."

A successful year with no evil effects from European conditions is foreseen by Alfred P. Sloan, Jr., president of General Motors Corporation. "I do not think that European conditions are going to have a great deal of influence," says Mr. Sloan. "Irrespective of the financial status of the various governments, the economic position of the individual is continually improving and as long as that continues a satisfactory result is sure to work out sooner or later.

"The purchasing power of this country is large at present and I see no reason why it should not continue through 1924. Labor is fairly well employed and is receiving good wages. The general position of the farmer has apparently improved during the past year.

"The fact that 1924 is a presidential election year should not prevent the maintenance of present business. The choice of candidates who inspire confidence and of platforms which are conservative will go a long ways to eliminate uncertainty which often exists during such periods. There is nothing, in my judgment, that would be more constructive or do more to stabilize business than a general recognition on the part of both parties of Secretary Mellon's proposal for tax reductions. Taking it all in all, I am optimistic as to the outlook for 1924. I can see no fundamental reason why it should not be at least a satisfactory business period and I can see many reasons why it ought to be an exceedingly good year."

The fact that transportation is a fundamental need and that the automobile is a basic industry in the sense that it appeals to basic human needs, are reasons advanced by Alvan Macauley for the continued popularity and demand for motor vehicles. "The demand for transportation, except in periods of depression, has always kept ahead of the facilities," says Mr. Macauley. "In the past 20 years, the population of this country has increased less than 40 per cent, but movement of people and goods multiplied between five and ten times. And this ratio will continue as the permutations and combinations possible among the population increases.

"The automobile satisfies more than the mere necessity of transportation. It symbolizes all the aspirations of the large mass of humanity for something beyond bread and butter. It appeals also to pride, the love for comfort, convenience and celerity, desire for privacy, longing for possessions, and the hunger for power. In the sense, therefore, that it appeals to

Auto Salesmen to Hear State Law Makers

GEORGE W. WELSH, Grand Rapids publisher and speaker of the Michigan House of Representatives, will make the principal address at the banquet of the Michigan Automotive Trade Association, at the Hotel Statler, Wednesday, Jan. 23. Speaker Welsh's subject is "Michigan and Its Greatest Problems." He is editor and publisher of a monthly magazine, and the Grand Rapids Chronicle.

Secretary of State Charles J. DeLand will discuss briefly the Michigan "Automobile Laws" at the banquet. Charles H. Culver, leader of the Wayne County delegation in the House of Representatives, will be the toastmaster.

In the morning session of the fourth annual convention of the M. A. T. A., the sate dealers will transact routine business, including the election of officers. After luncheon the dealers will spend the afternoon in an educational session. A. R. Kroh, of the sales promotion department of the Goodyear Tire & Rubber Company, Akron, O., will open the program with an address on "Service That Builds Sales." Charles F. Kettering, of the General Motors Research Division, is also expected to address the convention. Paul F. Brophy, of the Chamberlain Association, Inc., the firm which is engaged in nationalizing the Appleby Plan, which stabilizes the value of the used car and eliminates dealer's losses, will tell of the progress made in the nationalization of the plan since its announcement in October.

a larger number of needs, the appeal of the automobile is more basic than even clothing. Considering all factors present indications are that 1924 will be a larger production year than 1923."

Competition raised to the nth degree is stressed by A. B. C. Hardy, president and general manager of the Olds Motor Works, Lansing, as being the outstanding factor in automotive circles during the present season. "The cards are on the table and the picture for 1924 is now set up," says Mr. Hardy. "The present competition in the automobile business will grow hotter during the coming year and, as is similar in other industries, the entire condition will resolve itself into a question of economics. The company that can maintain production and eliminate every unnecessary cost, no matter how small, will be the one to best weather the storm. The result will be that the buying public will receive the greatest dollar for dollar value ever known."

Supreme confidence in the future of the industry is expressed by Edsel B. Ford, president of the Ford Motor Company. "Even though 1923 exceeded all our expectations, there is every reason to believe that in 1924 business will attain to far greater proportions," said Mr. Ford. "More people will buy automobiles during the coming year than ever before and we will produce more than we have ever scheduled. Today America is completely 'sold' on the automobile.

"Women are becoming a greater influence in the automobile buying field than ever before and the present year will see this influence considerably extended. It will be expressed particularly in the closed car sales. They are also remarkably good judges of value and it follows that the manufacturer who gives the greatest value for the lowest investment must certainly enjoy the greatest share of the business. To retain this business he must continually incorporate better quality into his product for the public is motor wise and transportation value is going to count most in 1924."

Tax reductions are seen as the keynote to the situation by A. R. Erskine, president of the Studebaker Corporation, of South Bend, in his conservative prediction for this year. In refering to the many and complex factors which lie ahead, Mr. Erskine says, "Many things can happen to fill the apple cart, and quite as many to upset it." As this authority sees the present situation, the nation as a whole and business in particular is on the fence. Prospects are good but there is a doubt whether it is better to go ahead or adopt a policy of entrenchment.

"Our biggest and best hope right now for renewing confidence, reviving activity and restoring the mental attitude to one of enthusiasm, confidence and optimism, lies in Congress. Congress must appreciate that the source of tax revenue is business, and that business has been and is bearing a most oppressive burden which it can lighten. The remarkable approval of President Coolidge and Secretary Mellon's tax reduction recommendation in every state proves that this is the dominant subject in the minds of business and people generally. If we get the tax reduction they recommend, business should and will undoubtedly respond immediately, and 1924 will be a prosperous year of the first order."

C. W. Nash, president of the Nash Motors Company, Kenosha, Wisconsin, confines his predictions to the first six months of 1924. After reviewing in detail the many factors which may influence the output of the present year, Mr. Nash sums up the situation as follows: "Industry is going forward; merchants are selling their wares; farmers, on the whole, are in good shape; and there is money in the banks. Presidential year has rolled around to find the country moving forward with every confidence in continued business activity. Presidential candidates are opening their respective campaigns and Congress, in session, is planning to give business added momentum by serious consideration of reduction in taxation. So it would seem, looking only as far ahead as July 1, that the first six months of 1924 will be a period of continued sound prosperity."

The ultra-conservatism which prevailed generally throughout the automobile industry, as well as in the mnids of the buying public, during 1923, in spite of the volume of business handled, has worked out to the improvement of the industry as a whole, according to J. V. Whitbeck, president of the Cleveland Automobile Company, Cleveland, Ohio. "The new year finds the majority of dealers not loaded down with heavy stocks of new cars nor are manufacturers carrying large inventories of raw materials. The conservative practice of last year has enabled the industry to start out 1924 with a clean slate.

"The dealers are in a better condition for another reason. To a large degree, the incompetent class of dealers were not able to stand the strain of competition and were obliged to go out of business last year, leaving the field to the better and legitimate type of automobile merchandisers. These are optimistic over the outlook for 1924 and have started out with a spirit of determination to reap their portion of the year's profits.

"The increased tendency toward closed cars will also have a beneficent effect on 1924 results. The closed car has and will continue to stabilize automobile sales from seasonal spurts to a steady year-around volume."

After scanning the 1924 horizon, Edward S. Jordan, president of the Jordan Motor Car Company, Cleveland, Ohio, states: "We may say that business in 1924 will be largely influenced by four factors. First, the increased use of motor cars by present owners who cannot possibly get along from day to day without this instrument of transportation. This will hasten the necessity for replacements.

"Second, the constantly increasing pressure on the part of mothers and the children who demand individual transportation while father is away at his business, will bring about the possession of from two to three motor cars in every family, capable of maintaining them. Third, the sales of motor cars since the 1921 depression have been spotted. The farmers in the great agricultural sections have not started to replace their cars purchased in 1921. They will come into the market in a substantial way in 1924. Fourth, the continued construction of good roads. Twenty-six thousand miles of good surfaced roads have been built in this country in the past five years.

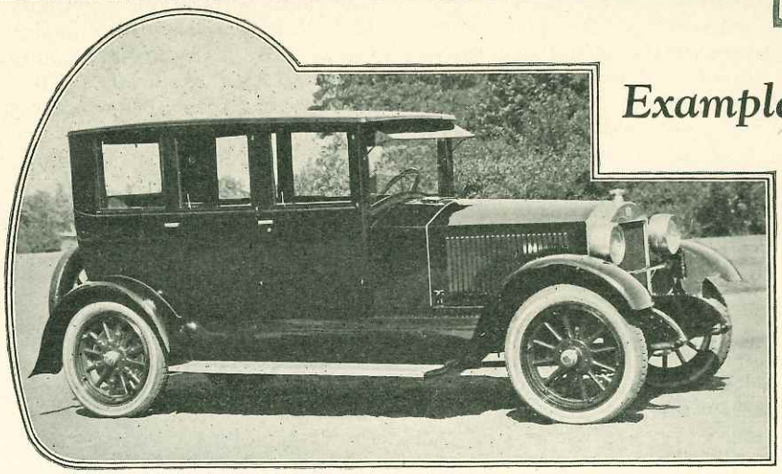
"Since the dealers are naturally ambitious to deliver all the automobiles they possibly can, I think that 1924 will not fall behind other years in the history of the automobile industry."

A steady upward trend in business generally and more stable prosperity for the rubber industry particularly during the coming year are predictions made by Harvey S. Firestone, of the Firestone Tire & Rubber Company. In support of his statement Mr. Firestone pointed to the remarkable progress made during the past year by his own company, which showed sales of $77,583,150, an increase of 20 per cent over the previous year, returning a net profit of $6,104,992 after providing for depreciation, taxes, interest and other charges. After paying preferred dividends and all other charges the common stock equity increased over $13 per share.

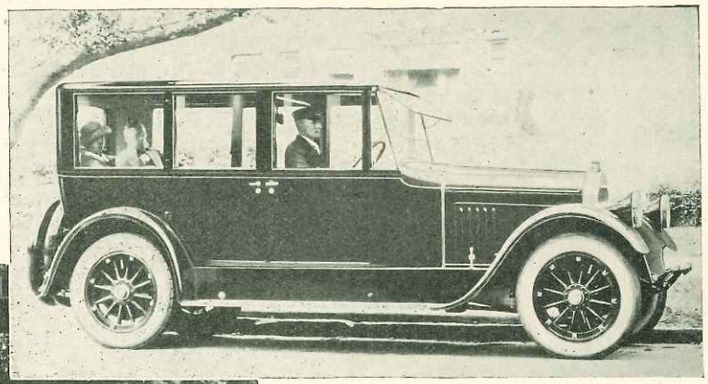
"As for general conditions," he said, "I feel sure that our improvement will be steady and sure. There is every reason to believe that the rubber industry has passed through its most difficult period. Manufacturing generally has made a record in economy and efficiency the last few years and I believe that the farmers upon whom so much depends for our prosperity are on a sounder basis, will produce more economically and be more prosperous.

"One of the greatest aids to the farmer has been the improvement of our roads. The tremendous expansion in this direction is shown by the recent announcement of the Bureau of Public Roads that 40,000 miles—sufficient to make more than 13 highways across the continent—were under construction this year and about the same amount would be under way next year. This gives a wonderful impetus to economical transportation and will be of especial benefit to the farmer."

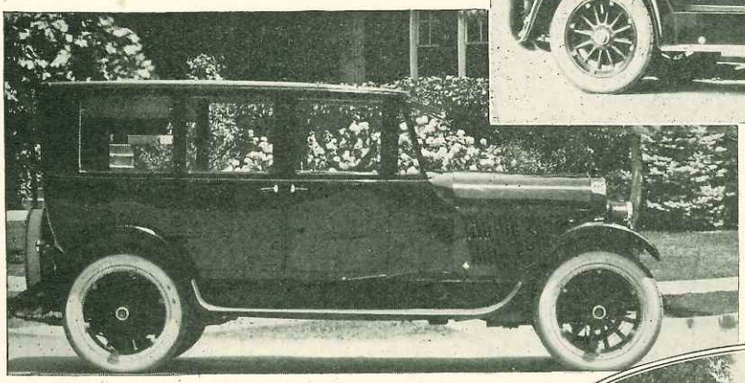
Examples of the Coach



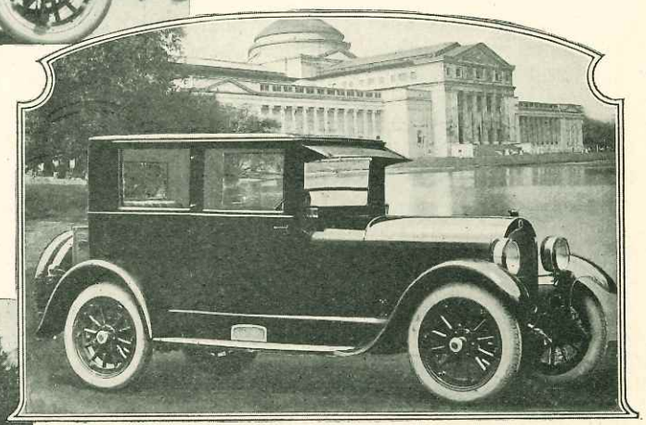
STANLEY 5-PASS. SEDAN
Exhibited at the National Show, with body by Baker R. & L. Co.



PIERCE ARROW ENCLOSED DRIVE
Having the free vision of a phaeton, but with complete protection for both passengers and driver



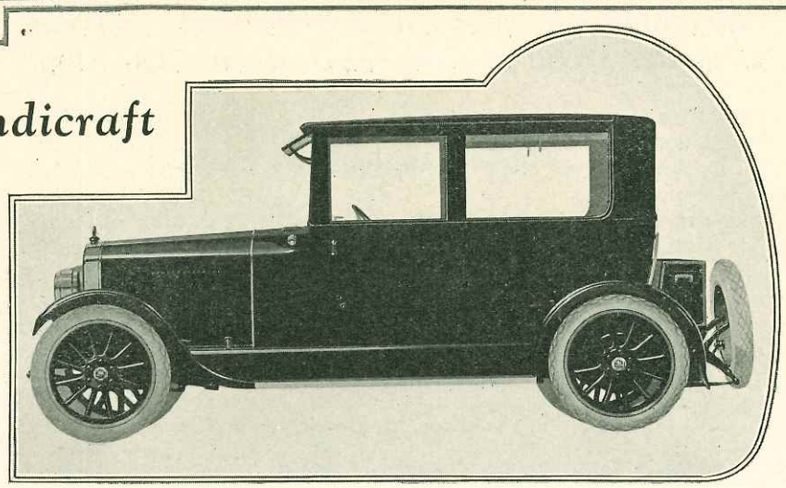
LEXINGTON SEDAN
With an all-aluminum body, built by the McFarlan Corporation



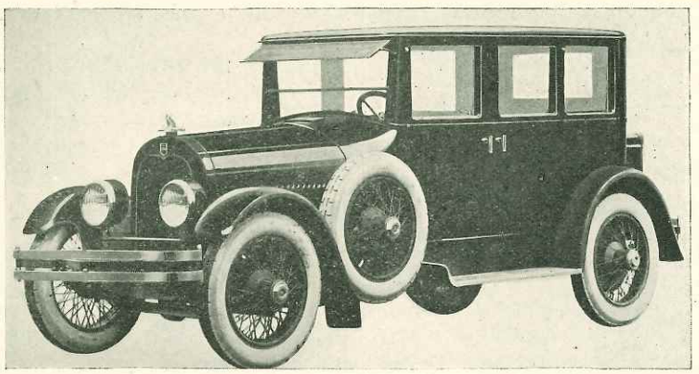
WESTCOTT 5-PASS. "BROUGHAM"
A comfortable and dignified model, with body by E. J. Thompson Co.

CADILLAC LANDAU SEDAN
A New Non-Collapsible Type—Giving Greater Degree of Privacy.

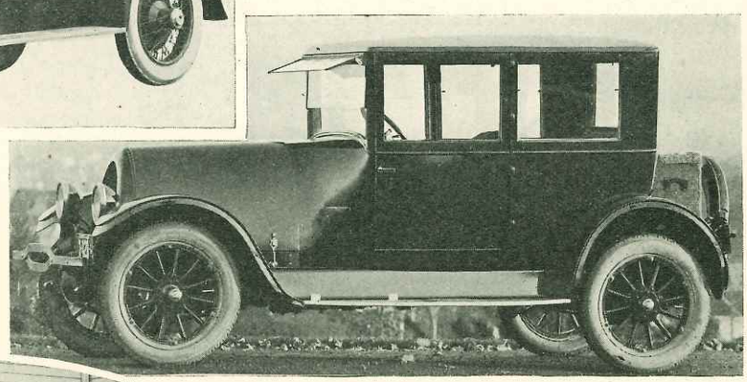
Builder's Handicraft



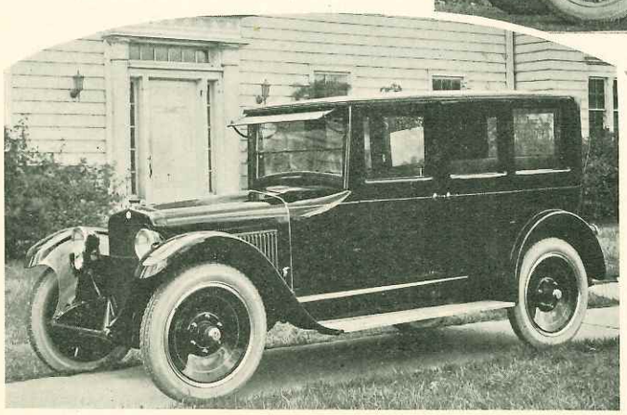
ELCAR 5-PASS. "BROUGHAM"
A graceful model of a popular type of closed car



APPERSON 5-PASS. SEDAN
Has double bumpers, front and rear, touring trunk, three-quarter running boards, and spare wheels at sides

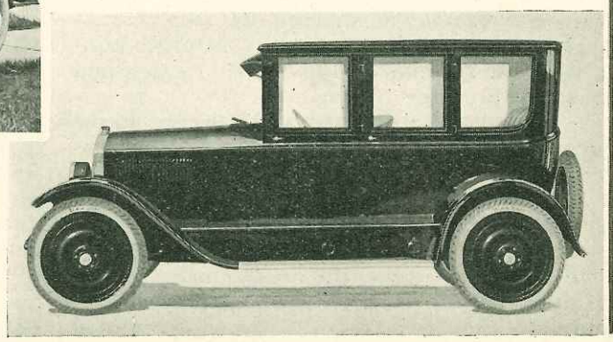


FRANKLIN 5-PASS. "BROUGHAM"
Has duralumin-and-enamel hardware, and duralumin window-stop channels



WILLS STE. CLAIRE
One of the most popular exhibits at the show

DORT'S HARVARD SEDAN
A popular priced model on the new light, 6-cylinder, 115-in. chassis



Tracing the Auto Show's Origin

Originally a Sportsmen's Event, It Finally Branches Out as Huge Industrial Exposition

By W. D. EDENBURN
Manager, Michigan Automotive Trade Association

DETROIT'S 23rd annual Auto Show is the third of the Detroit Auto Dealers Association's shows which has returned to the same location after an absence of years. It is, however, the first time that it has ever returned to a site and not occupied the same structure. It was in 1917 that the Auto Show was conducted on the former Detroit Athletic Club field, then known as Grindley Field. The structure was the Billy Sunday Tabernacle, a temporary frame structure, erected early in the fall for revival services of the famed baseball evangelist.

This year the show will be conducted in the new Convention Hall, January 19-26. This building covers the entire plot formerly known as Grindley Field and the show space is more than four times as great as that of the Billy Sunday tabernacle. This year the trade has 180,000 square feet in which to display its wares to the motorwise public of the center of the world's automotive industry. It will also be the largest show in the history of the Detroit Auto Dealers Association, since the inception of the show back in 1902.

Since its start the show twice returned to the same location, but used the same facilities. This occurred in 1920, when the D. A. D. A. used the Ford branch building at Woodward and Grand boulevard, where the show had been held in 1914. In 1916 it also played its second engagement at Riverview Park, utilizing the dance halls, and repeating 1905.

A survey of the show calls for 329 passenger cars, 87 commercial cars and 110 automotive equipment exhibits. From a show standpoint Detroit compares more favorably with the national shows in New York and Chicago than any other show in the country conducted by members of the retail trade. The Detroit show annually attracts hundreds of dealers from all sections of the United States and Canada and the majority of the big manufacturers. In addition the Detroit show plays to the most critcial automotive audience in existence, for the Detroit public is motorwise to the nth degree and super-critical of things automotively mechanical. It has been the demands of this audience which has raised the show to its present high standard.

In the beginning, back in the "dark ages" of 1902, the show was not an Auto Show. True, the crude affairs, loaded with brass and other encumbrances, were displayed, but only as an adjunct to the "Sportsman's Show," promoted by the city's sporting goods dealers and staged in the Light Guard Armory. Now it is good form to have the strains of soft-toned string orchestras sooth the prospect and inspire the salesman, while in the "dark ages" the music was furnished by the yappings and howlings of the thoroughbred dogs, a part of the "Sportsman's Show." The show ran three years in the Armory, but the last year, 1904, King Motor's subjects demanded so much floor space that the canine exhibit was crowded out, never to again play on the same stage.

Back in 1905, when E. LeRoy Pellitier was connected with the Ford organization, the dealers obtained his services and broke away from the Armory, taking the show to Riverview Park, on East Jefferson. From the east side the show moved in 1906 to the Wayne Gardens, at the foot of Third street, for its longest run. It was an eight-year stand for the "Auto Show" and it remained there until 1914, when it moved to the new Ford retail branch building, at Woodward and Grand Boulevard.

In the 1914 show there was one division which played a one-year stand. It was the year of the cycle car craze. More than 50 potential "Henry Fords" saw in the light, low powered and narrow treaded vehile the opportunity to become industrial barons and the clamor for show space was unusual. By the time the next show rolled around the majority had liquidated, retired from business by invitation of the sheriff or taken under the wing of some passenger car manufacturer. The show that year was expected to mark the announcement of the Ford cycle car, which did not materialize, the "rumor factory" being unable to deliver its product. Being "homeless" the Auto Show had an arduous task in 1915 to find a temporary home, but the dealers being resourceful finally used the new plant of the Detroit Lumber Company, the only time that the show ever "went west" any great distance. In 1916 it played a return engagement at Riverview Park, on the east side. This was the last show under the management of Walter Wilmot, of Minneapolis.

H. H. Shuart, manager of the D. A. D. A., became the "boss" of the Auto Show in 1917. He sought a suitable building and when he had exhausted practically every lead, obtained the Billy Sunday Tabernacle. It was a rather disheartening prospect at first. The building was not constructed to withstand the buffetings of winter and it was necessary to cover the entire structure with weatherproofing material, line the interior to aid in keeping out the cold and to install a temporary heating plant. However, the show played to a record crowd and it was some years before the Wednesday night mark, of 1917, was bettered. Taking the building as a whole it was low ceilinged and unattractive but the decorations had a Japanese motif which

Facts and Figures for Detroit's Auto Show

TWENTY-THIRD annual show Detroit Auto Dealers' Association.

Dates—January 19 to January 26, opening 7:30 p. m. Saturday, January 19, every day thereafter 10 a. m. to 10:30 p. m.

Location—Convention Hal , Woodward and Cass avenues, near Forest.

Convention Hall—One-floor building, containing 180,000 square feet of exhibition space.

Number passenger cars exhibited—329.

Number commercial cars exhibited—87.

Number automotive equipment exhibits—110.

Lowest priced passenger car—$265.

Highest priced passenger car—$14,500.

Lowest priced commercial car—$370.

Highest priced commercial car—$7,500.

Parking—Ample facilities arranged by police department for autos.

Transportation—Two street car lines, bus and jitney service.

Entrances and exits—Woodward and Cass avenues.

Entertainment—Four orchestras, afternoon and evening.

Office of show—Northeast corner of building.

Cadillac Presents Two New Closed Bodies

The Cadillac Motor Car Company announces two additions to its closed car group—a new Seven Passenger Sedan and a new Four Passenger Victoria Coupe.

These new bodies, produced in collaboration with the Fisher Body Corporation, are mounted on the standard V-63 chassis, with its famous harmonized V-Type eight-cylinder engine and Cadillac Four Wheel Brakes.

The Victoria Coupe and the Seven Passenger Sedan list at $3275, and $3585 respectively, f. o. b. Detroit—and these prices, combined with Cadillac quality, single them out as preferred investments in their field.

Victoria Coupe
$3275
Seven-Passenger Sedan
$3585

CADILLAC MOTOR CAR COMPANY

Detroit Branch: Cass Avenue at York St.
Jefferson Avenue Division: Jefferson Avenue at Walker St
Additional Display Room, General Motors Building

CADILLAC

Expect Great Things

V-63

turned the building into the most attractive in the history of the D. A. D. A. shows.

During the war year, in 1918, when lightless days, heatless days and all other kinds of "less days," made the holding of the Auto Show a minor matter in Detroit's economic life the show was staged in the service station of the Simons Sales Company, on Willis at Cass avenue. After the Armistice, in 1919, the show was held in the Crosstown Garage, on John R near Warren, and in 1920 returned to the Ford branch building.

Morgan & Wright was host to the show in 1921 and 1922, allowing the dealers to use the second floor of its new and mammoth tire building unit, out East Jefferson. These two shows held the floor space record until this year, with 150,000 square feet. A year ago Manager Shuart was successful in obtaining the use of the new Municipal Garage, on East Jefferson, before the city housed its motor transport units there.

This year's show will be colorful. The northern wing of the mammoth structure will be decorated with a Chinese theme, giving a setting of Oriental colors for the commercial cars and automotive equipment. The south wing will be clothed in conventional black and white, providing a striking background for the products of the coach maker and shiny enamel of quantity production passenger cars.

There are entrances and exists on both Woodward and Cass and the show will have facilities, with its 14 and 20 foot aisles to handle more than 200,000 people during the eight days the show is open. It is a far cry from the first show, when the auto was secondary to the canine exhibit, to the magnificent display of things automotive in the new Convention Hall this month.

Three new cars, which had their premier and were the sensations of the New York Show, will be exhibited in the Detroit show. This trio of new passenger cars are: Chrysler six, Eagle six and Rollin four.

The most talked of and the dominant feature of the recent national show in Gotham was the Chrysler six, a Detroit product, which is being placed on the Detroit market by the John H. Thompson Company, distributors of the Maxwell, Chalmers and Chrysler cars, the products of the Maxwell Motor Corporation. The car is the product of ten years' experience in the automotive industry on the part of Walter P. Chrysler, who has long been a dominant figure in the industry and who three years ago became chairman of the board of the Maxwell Motor Corporation.

In the New York show the public's interest was such that it was almost impossible to even approach the Chrysler models on display. In the Detroit show the distributor will devote a total of 2,000 square feet, a space sufficient to show 10 cars to the display of the Chrysler models, that all the show visitors may have an opportunity to closely inspect Detroit's newest contribution to the industry. It is built in six body types, two touring, roadster, brougham and two sedans.

One noticeable feature is that it has a very small engine for a production car, its six cylinders having a total content of 201 cubic inches, following the natural trend of the engineer to obtain increased fuel economy and retain the requisite power. Its fuel consumption is placed at 20 miles per gallon, its horsepower 68 and its speed at 70 miles an hour. Another distinct departure is that it carries full equipment, designed as integral units and not attached after purchase. The car is the product of Mr. Chrysler and his special engineering staff, headed by Fred M. Zeder. O. R. Skelton and Carl Breer. It is well to note that the Chrysler six is equipped with hydraulic four wheel braking system.

The Eagle six is one of the Durant products and will be exhibited by the Detroit-Durant Company, which will show all the Durant products, including the Flint six, the Locomobile, the Durant four and the new Star models.

Rollins four is the new Cleveland product of the firm organized by Rollin White and which has been before the public only a short time. It is one of the cars of particular interest to the engineering fraternity and includes some important departures from established practice.

The dealers represented in the show will display all the standard makes of cars sold in the Detroit territory, and many will have new models shown for the first time to Detroit's motor-wise public in a combined display under one roof. There will be a noticeable increase in four wheel brakes and balloon tires as equipment since the annual display of closed models in October. There will be a showing of the Sterling-Knight, by Wagner Bros., it being the show debut in Detroit of this Cleveland-built sleeve valve engined passenger car. The Moon six, from St. Louis, will be in the show, after an absence of two years, coming back to a Detroit show with many changes, including four wheel brakes. The Kissel Kar, which has not been displayed here since 1918 will also be shown next week.

The most expensive car in the show this year will be the Rolls-Royce, which carries a modest price tag of $14,500, while adjoining the exhibit of this famous British motor car will be the Ford exhibit, with the lowest priced car in the show, a roadster at $265.

The entire south bay of the Convention Hall will be given over to the display of passenger cars, with the following makes represented: Overland, Willys-Knight, Nash, Lincoln, Stutz, Maxwell, Chalmers, Chrysler, Sterling-Knight, Paige, Moon, Reo, Chandler, Rolls-Royce, Ford, Franklin, Jordan, Hupmobile, Packard, Pierce-Arrow, Kissel Kar, Oakland, Marmon, Cadillac, Rickenbacker, Oldsmobile, Wills Ste. Claire, Studebaker, Gray, Durant, Eagle, Flint, Locomobile, Star, Peerless and Dort. Five makes of passenger cars will occupy the eastern portion of the north bay: Rollin, Dodge Brothers, Jewett, Buick and Chevrolet. In the north bay, in the western half, will be grouped the commercial cars as follows: Kelly-Springfield, Federal, Ford, Overland, Denby, Chevrolet, Dodge Brothers, Reo, Pierce-Arrow, G.M.C., Gotfredson, White and Ruggles. The Gotfredson and Ruggles will have their initial showing in a Detroit show, while the White returns after an absence of years.

The Automotive Industry's Record for 1923

OUTSTANDING accomplishments of the automotive industry in 1923, are strikingly revealed in figures prepared by Alfred Reeves, general manager of the National Automobile Chamber of Commerce, as follows:

Cars and trucks produced, 4,014,000. Cars, 3,644,000. Trucks, 370,000.

Previous record motor vehicle production, 1922, 2,659,064.

Percentage increase over 1922, 50%.

Production of closed cars, 1,235,000.

Per cent closed cars, 35%.

Total wholesale value of cars, $2,243,385,000.

Total wholesale value of trucks, $267,500,000.

Total wholesale value of cars and trucks, $2,510,885,000.

Tire production, 45,000,000.

Wholesale value of motor vehicle tire business, $760,000,000.

Total wholesale value of parts and accessories, exclusive of tires, $1,310,000,000.

Average retail price of cars, 1923, $811.

Average retail price of trucks, 1923, $1,080.

Number of persons employed in motor vehicle and allied lines, 2,750,000.

Special Federal excise taxes paid to U. S. government by automobile industry in 1923, $155,000,000.

Motor vehicles registered in U. S. (approx.) 14,500,000. Motor cars, 12,880,000. Motor trucks, 1,620,000.

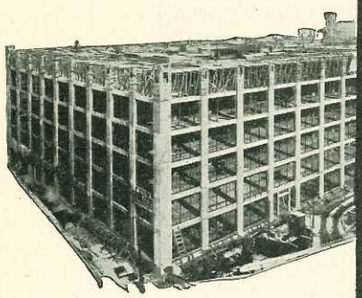
World registration of motor vehicles, 17.000,000.

Motor vehicle registration on farms, 4,250,000. Motor cars, 3,890 000. Motor trucks. 360,000.

Miles of improved highway, 430,000.

Total miles of highways in U. S., 2,941,294.

Guaranteed
~ Design
~ Delivery
~ Quality
~ Cost



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The first Ferguson structure completed for the National Cash Register Company. Four others have followed

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WHEN an organization has spent years developing industrial buildings; when it has standardized and perfected them by the erection of hundreds of acres of floor space; when it can look back with satisfaction on structures completed for such exacting firms as those listed at the right,—then it can *guarantee.*

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The H. K. Ferguson Company is such an organization.

You can have the benefit of Ferguson service no matter where your site is located. You can buy your building complete—at wholesale—from this one organization. You can eliminate errors, save costly delays. You will find it better and cheaper to buy from Ferguson than to build yourself.

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Ferguson
GUARANTEED BUILDINGS

New Production Record Likely

Schedules Announced and Estimates Indicate Output of 5,000,000 Motor Cars for This Year

By MARC BRAUN
Associate Editor, Michigan Manufacturer and Financial Record

IT IS LIKELY that American automobile manufacturers will build in excess of 5,000,000 cars during 1924 rather than less than 4,000,000 as quite a few analysts predict. In fact, there is no good reason why the 5,000,000 mark should not be well exceeded.

Preliminary figures recently announced by the National Automobile Chamber of Commerce indicate that the output of cars and trucks in the country totaled 4,014,000 units in 1923, or approximately 1,355,000 more than in 1922. Inasmuch as many manufacturers have announced how many cars they are planning to build this year, and others have not set tentative figures giving a fair idea of their plans, it seems reasonable to estimate that the motor car builders will make about 25 per cent more automobiles this year than last year.

If we consider the two largest producers, the Ford Motor Company and the General Motors Corporation, we find that the minimum output of Fords is to be 2,550,000 units and the minimum aggregate for the various units which make up the G. M. C. 1,250,000, or a total for the two of 3,800,000 cars. And there are more than 100 other manufacturers on the general list, at least fifty of them building from 2,500 to 300,000 cars. Therefore we consider our estimate as reasonable.

In the course of an article concerning the production outlook for 1923, we said in the issue of December 23, 1922: "Production schedules, announced officially by some of the manufacturers, and estimated unofficially in some other cases, reveal big plans for the coming year. It may not be improbable that close to 4,000,000 motor vehicles will be made during 1923."

The estimate for the current year is based on the same principles, or from the officials' statements made and information obtained from other sources.

We must, of course, begin our analysis with the biggest producer, the Ford Motor Company. No definite information as to the year's production has been given out and very likely none will be made because the Ford schedule is not prepared for the full year, not even for six months. Recently Henry Ford stated that it was hoped that some time this year a daily output of 10,000 Fords will be attained. This probably will not be for quite a few months to come. We know that on many occasions last year a daily production of better than 7,500 cars was recorded. With the production facilities now already greatly increased the Ford daily average for the year should be better than 8,500 cars and on the basis of 300 working days this would mean a total output of 2,550,000 Fords, which figure is more apt to be higher.

The second largest motor car producer in the country is the Chevrolet Motor Company, Flint, which is also the largest of several units making up the General Motors Corporation. According to a statement made to the Wall Street Journal, between 750,000 and 800,000 Chevrolets will be made, as compared with 483,432 last year.

The Buick Motor Company, Flint, the second largest G. M. C. unit, will build between 235,000 and 250,000 cars, as compared to about 205,000 last year.

The Oakland Motor Car Company, Pontiac, another of the G. M. C. group, will make 75,000 Oaklands.

Unofficially, it was reported that the Cadillac Motor Car Company, Detroit, will make 30,000 to 35,000 cars and the Olds Motor Works, Lansing, 6,000 Oldsmobiles a month or 72,000 for the year. Both are General Motors plants.

In Toledo, the official announcement was made that the Willys-Overland Company will produce 300,000 Overland and Willys-Knight cars, the bulk being the former. This compares with 200,614 in 1923.

The Hudson Motor Car Company, Detroit, which also produces the Essex, plans to make between 110,000 and 120,000 Hudson and Essex cars, as compared with about 90,000 the past year.

Just what Dodge Brothers, Detroit, will do has not been announced, but according to information from different sources there will be made between 250,000 and 300,000 cars this year.

The schedule of the Hupp Motor Car Corporation, Detroit, calls for 40,000 Hupmobiles, as compared with about 38,000 last year.

The Rickenbacker Motor Company, Detroit, will strive for an output of 12,000 as compared with about 8,500 in 1923.

Plans of the Studebaker Corporation, Detroit and South Bend, Ind., are said to call for from 150,000 to 175,000 cars, as compared to about 150,000 for the past year.

The Nash Motors Company, Kenosha and Milwaukee, Wis., is said to consider 75,000 to 85,000 Nash cars for this year as compared with 60,000 last year.

The aggregate production of Paige and Jewett cars, by the Paige-Detroit Motor Car Company, will be 75,000, according to the company's statement, as compared with around 45,000 last year.

The Gardner Motor Car Company, St. Louis, Mo., will turn out 17,500 cars. In 1923 about 9,500 were produced.

The Moon Motor Car Company, in the same city, has a schedule calling for 25,000 cars this year.

The Reo Motor Car Company, Lansing, which made about 42,000 cars last year, is said to plan 20,000 more this year, or a total of around 62,000.

In Cleveland, the Jordan Motor Car Company, has laid plans for 20,000 to 25,000, it is said.

(*Continued on Page 70*)

Automobile Production Estimate for 1924

Ford	2,550,000
Chevrolet	750,000
Buick	235,000
Hudson-Essex	110,000
Overland-Willy-Knight	300,000
Dodge	250,000
Hupmobile	40,000
Rickenbacker	12,000
Studebaker	150,000
Oakland	75,000
Nash	75,000
Paige-Jewett	75,000
Cadillac	30,000
Gardner	17,500
Moon	25,000
Oldsmobile	72,000
Reo	62,000
Jordan	20,000
Chandler	22,500
Packard	30,000
Franklin	18,000
Dort	30,000
Maxwell	60,000
Chrysler	15,000
All Durant Cars	290,000
Miscellaneous	125,000

PIERCE

Tonight, the *correct* car for the formal evening function—its dignity, its distinction, setting it apart from all others.

Next summer the *sensible* car for the three-day run to mountain or seashore—its responsiveness, its eagerness, exhilarating those who love a high-spirited engine.

For any season, for any purpose, the Pierce-Arrow Enclosed Drive Limousine affords luxurious comfort—grateful protection in winter; open car airiness in summer. A turn of the handle converts it *completely* from a formal, chauffeur-driven car into a companionable, owner-driven Sedan.

It is a pleasure for any Pierce-Arrow distributor to demonstrate this or other models. All are powered by the Pierce-Arrow Dual-Valve, Dual-Ignition Engine.

Open cars are $5,250; closed cars, $7,000, at Buffalo. Government tax additional.

WM. F. V. NEUMANN & SONS CO.
6040 Woodward Avenue
DETROIT, MICH.

"Pride of its makers makes you proud in possession."

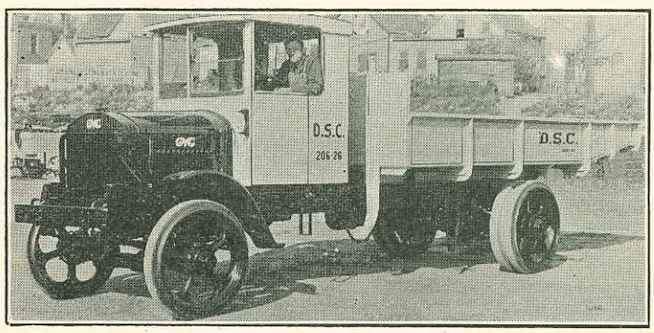
When in Buffalo visit the Pierce-Arrow factory. Courteous guides will show you how Pierce-Arrow cars are built.

ARROW

OFFICERS OF THE DETROIT AUTO DEALERS ASSOCIATION

Trucks Aid Road Builders

In these days of road building activity motor trucks are proving the pathfinders and are doing the pioneer work for their more aristocratic brothers, the passenger cars. Theirs is the job of carting heavy loads over soft dirt and mud when new roads are being graded, and of retracing their paths with tons of road building material. At



the same time they have to travel over improved roads where the maximum speed their weight will permit is required.

To meet the exacting requirements of this work, and also those every delivery unit has to contend with on the unpaved highways found in every community, an economical truck that combines great pulling power and yet is speedy is essential. The only solution of the problem so far found, according to automotive engineers, is the two-range transmission which has been developed by the General Motors Truck Company.

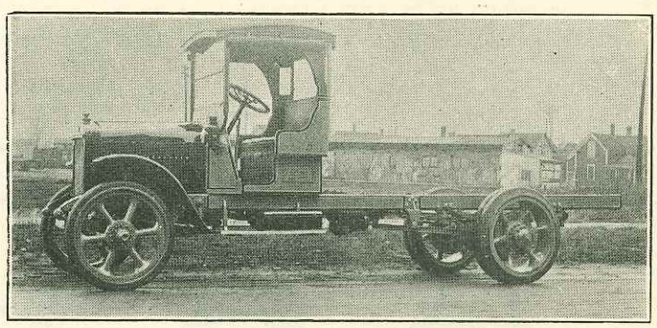
Under ordinary use a truck with the two-range transmission operates on four speeds so geared that they give the maximum speed for the size of the truck. By the shift of a lever, however, another set of speeds are available. These low-range speeds are equivalent to a truck equipped with a low-speed rear axle and provide a maximum pulling power.

Acme Truck Has New Features

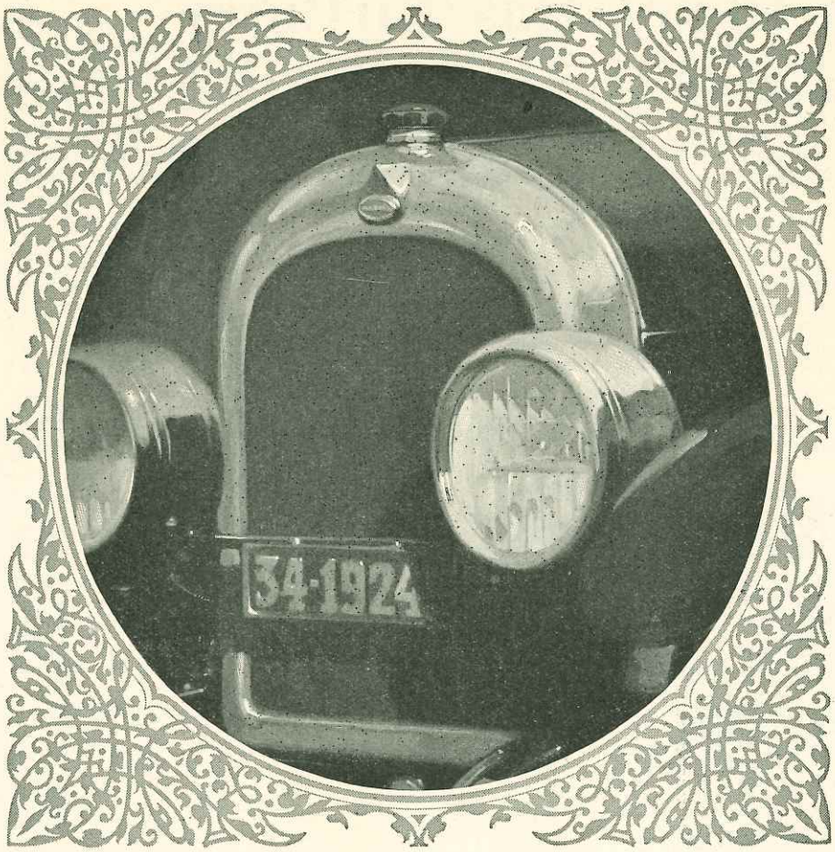
New features of the model pictured above, the product of the Acme Motor Truck Company, Cadillac, are radius rods and steel wheels. The model is designated as Model 60L.

Charles A. Ward, Jr., former manager of the company's branch offices at New York and later at Cleveland, has been appointed sales manager of the company and is now stationed at Cadillac.

C. F. Williams, president of the company, in his prediction for 1924, states: "Conditions and prospects warrant the expectation of good business for six to eight months to come. The banking situation is in a healthy condition. Employment



continues at a high level with building and construction good, which naturally stimulates a variety of industries. With the possibilities of adoption of the Mellon plan for reduction in taxes, either as proposed or in a modified form, we feel that business will expand generally."



MARMON—A better product for less money has never yet failed to find a ready response from the American buying public—or from motor car dealers. The Marmon with its sixteen new and distinct refinements now sells for $2785

Price Range, $2785 to $4285

All prices f. o. b. factory. Government tax additional

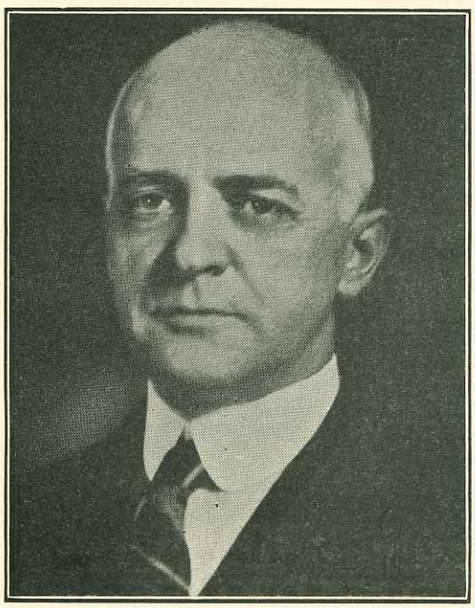
MARMON-DETROIT CO.
5941 Woodward Ave., Detroit, Michigan

MARMON

Machinery Depot Has Birthday

THE McMullen Machinery Company, of Grand Rapids, is this month celebrating its fifteenth anniversary as a machinery depot for western, central and northern Michigan. The company maintains the only complete machinery and equipment house in its territory.

It was fifteen years ago that the president, George K. McMullen, who foresaw the future of the territory industrially, resolved to give the western, central and northern part of this state a machinery depot service of its own, making it unnecessary for manufacturers to go outside for their equipment. Mr. McMullen started modestly in quarters opposite the Union Station and occupies the same location today with greatly enlarged space.



GEO. K. McMULLEN

This company handles everything in shop equipment. It maintains stocks occupying 40,000 square feet of floor area and valued in excess of $150,000. Some 50 leading national lines are handled on an exclusive basis in this territory. They embrace wood working machnery, wood shop accessory equipment, metal working machinery, machine tool accessories, manual training and vocational school equipment, transmission equipment, electrical motors, compressed air equipment and contractors equipment. A completely equipped machinery repair shop is also maintained for the overhauling and repairing of used machinery. The purchase and sale of used machinery is an important part of the business.

The McMullen staff of sales representatives are men of long experience and the most of them have practical shop training. Mr. McMullen himself is a graduate of the University of Michigan in electrical engineering and is a member of the American Society of Mechanical Engineers. Before establishing his own business he had a varied experience in the manufacture and sale of wood and metal working machinery, now totaling over a quarter century.

The sales manager, J. E. Monahan, is a graduate of mechanical engineering of Armour Institute of Technology. His experience with various machinery houses covers a period of 15 years and he has been associated with the McMullen Company since 1015.

C. D. Stryker is assistant sales manager in charge of the equipment department. Mr. Stryker has ban 17 years of practical experience in factory equipment.

W. G. Foote, who is one of the McMullen specialists in woodworking machinery, has had 40 years of practical shop experience. He is also superintendent of the machinery repairing department.

J. M. Newboult is a general representative, covering the northern counties of Michigan. Mr. Newboult has had a number of years of practical shop experience also.

The general representative covering southwestern Michigan, with headquarters in Kalamazoo, is C. M. Bradfield, who had 21 years of practical shop experience preceding his seven years' connection with the McMullen Company.

The interests of central Michigan are served by General Representative Fred W. Redemsky, with headquarters in Lansing. Mr. Redemsky combines 14 years practical experience with a technical training in mechanical engineering in the University of Wisconsin and University of Michigan, being a graduate of the latter.

J. E. Robison, who has had 14 years machine shop experience, is in charge of factory equipment sales in southwestern Michigan.

F. N. Willyard, in charge of factory equipment sales in Grand Rapids and vicinity, has had a technical training with various machinery houses.

The 1,144-page McMullen catalog is considered the most complete machinery and accessory catalog ever issued by any house.

Crane Unloads Sheet Steel

The first practical machine devised for unloading sheet steel from railway cars is the Baker Locomotive Type Crane, built by The Baker R. & L. Company, Cleveland, Ohio, shown in the accompanying illustration. This machine will run inside the standard box car, pick up a 3,000-pound load of sheet steel, carry it into the warehouse and stack it.

With the methods commonly used, sheet steel is probably one of the hardest commodities to handle. Men lift it out of the car slowly, sheet by sheet, and pile it onto trucks for transferring it to the warehouse where it must be again picked up, sheet by sheet, and piled for storage. This crane, however, is fitted with a very ingenious device which will take hold of a number of sheets at one time and pick them up without danger of dropping any. This carrier device is adjustable and will fit any size of sheet.

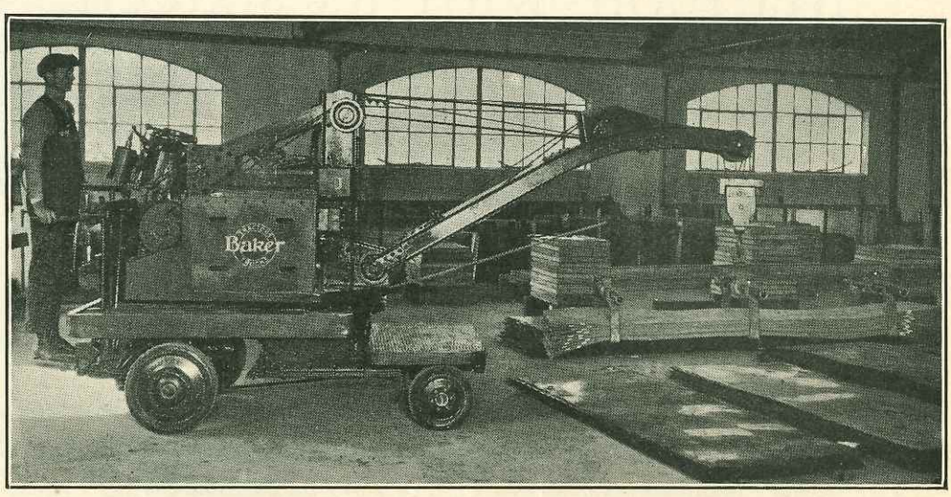
This crane has a very broad field of usefulness in manufacturing plants, railroads, etc. It is applicable to every industry where heavy parts or packages must be lifted or transported. In addition to the use described above it will lift heavy members in erecting shops, place large castings on machine beds, stack and carry pipe or bar stock and numberless other heavy tasks.

When used for unloading sheet steel it must operate inside of a standard box car and is furnished with a boom 8 feet long and the wheelbase reduced to 60 inches, but for most applications it comes with a boom 12 feet long and the wheelbase 70 inches. For some applications longer booms up to 19 feet in length are furnished. The 19 foot is particularly adapted for locomotive trimming and will reach over the top of a locomotive and remove a front door, stack, air pump or other engine parts.

Every motion of this machine is electrically driven and the controls are mounted on the dash directly in front of the operator. One motor propels the truck, a second motor slews the crane, while the third motor drives the main hoist. The main hoist is of very ingenious construction since it consists of two drums, both driven by the same motor through a pair of magnetically operated clutches. solenoid brake prevents rotation except when power is applied and three limit switches are provided to control each operation.

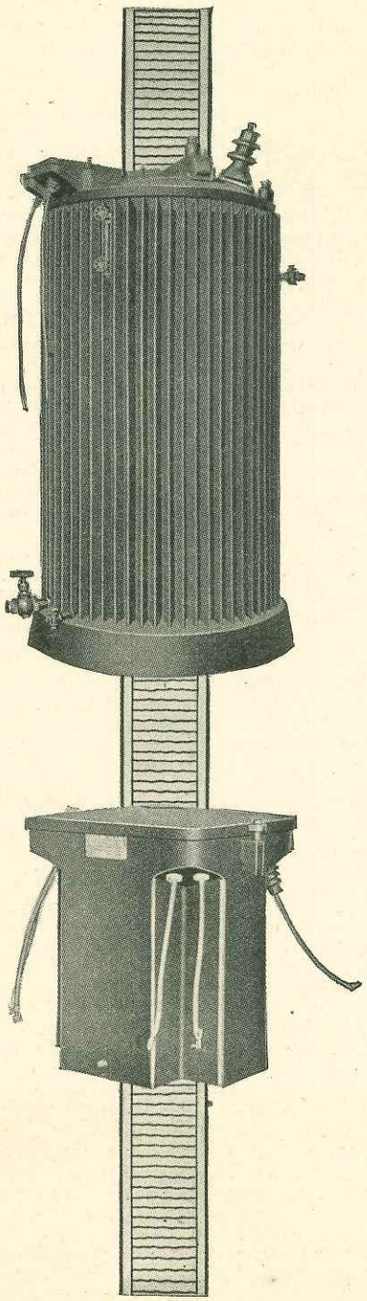
Condensed specifications of this machine are as follows: Capacity, 3,000 pounds at 7 foot radius; travel speed, 3 to 4 MPH; battery equipment, 12 cells of 19-plate Ironclad or 21 cells A-8 Edison; single reduction worm drive axle driven by totally enclosed Baker motor and equipped with Duplex Compensating Suspension; continuous torque drum type controller, with metal drum and reversible fingers; quick break type automatic switch with auxiliary carbon contacts; external contracting brake interlocked with automatic switch; double drum hoist driven by Baker compound motor through a worm and gear reduction and magnetically operated clutches; crane slews on ball thrust bearings and ball and bronze radial bearings, slewing motor drives through a worm and spur gear reduction and is equipped with solenoid operating brake; positive limit switches automatically control all motions of crane.

The Baker locomotive type crane will be on exhibition at the Detroit Automobile Show and it is expected that it will attract a great deal of attention.



Baker R. & L. Crane Unloader

The use of KUHLMAN TRANSFORMERS *assures Safety and Uninterrupted Service*



KUHLMAN distribution transformers are designed in types that will give the maximum oil circulation. Every turn of wire is exposed to oil. The complete assembly of primary and secondary coils is treated by a special vacuum process to remove moisture, and is then impregnated with an oil proof insulation which will remain leak proof under maximum operating temperatures. These features assure economical operation.

It is impossible for high voltage conductors to come in contact with low voltage and insulation extends well beyond the windings at each end. Primary windings are kept well away from the core. Kuhlman Transformers are safe.

We have an interesting book about transformers which is yours for the asking. Write for Bulletin 310

KUHLMAN ELECTRIC CO.
BAY CITY MICHIGAN

KUHLMAN TRANSFORMERS

New Metal Aids Stove Makers

Research By W. J. Wilder Develops Rust-Heat Resistant Sheet Now Largely Used for Ovens

THE EVER increasing losses caused by rust where iron or steel are used continues to present one of the most vital problems that confronts industry. There has probably been more research work during the past 10 years along the lines of rust prevention than in any other branch of metallurgy. The results of these efforts have produced various effective methods that have proven of great value and industry in general has been greatly benefited thereby. The demand for still further advancement is general, however, and the trade awaits a better product at a cost that will not prohibit its general use.

The sheet industry has particularly concerned itself with the problem of rust prevention and the generally accepted method has been in the application of a coating either of one of the virgin metals or an alloy. It is possible that very little additional development will be obtained in the use of a single metal coating, therefore, the field of advancement lies in the use of an alloy, which combines the good features of several of the standard metals.

With this object in view the late W. J. Wilder, of Connelsville, Pa., and Niles, Ohio, started his experiments in 1893 at Hampton, Ia. In the intervening period up to 1908 the developments followed along the lines of perfecting a process that would embody features not evident in the generally used coatings. The important points suggesting themeselves being, the firmness of the bond between the coating and the sheet, the absence of a fibrous or porous structure of the coating and its ability to withstand hard usage in ordinary manufacturing practice.

In 1908 a sheet was perfected at Connelsville that, in addition to resisting rust, was found capable also of withstanding extreme heat conditions. Certain lines of industry were immediately interested. The stove manufacturers in particular had been confronted with the important problem of providing an oven lining which would give reasonable service and within a short time several prominent manufacturers adopted this so-called Wilder Metal for this purpose. The actual summing up of the real value has only been possible after years of use. The installations of Wilder Metal oven linings now reach into the millions, some of the manufacturers guaranteeing their ovens against rusting out during the life of the stove. In view of the previous experiences of the stove industry it is considered remarkable that any metal should withstand the severe corrosive action of gas fumes and condensation which literally riddle the ordinary sheet in a short time.

Notwithstanding that the stove industry has been the largest user of Wilder Metal there have been many installations in other lines of industry. The sheets have been installed where the most severe atmospheric conditions are encountered. This includes not only such destructive conditions as are found near salt water, but also those in sections such as the coke regions where the life of ordinary sheets is extremely short.

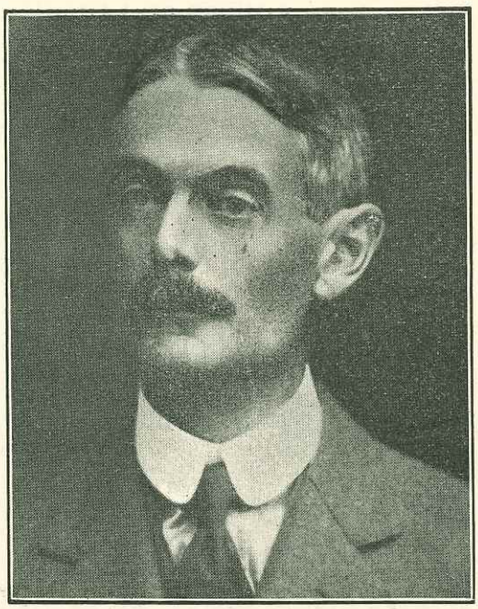
The standard Wilder Metal sheet used for oven linings is of a somewhat hard grade, this being due to the necessity for heat resistance. For general purposes this grade is somewhat difficult to form as there is a tendency for the coating to break unless defined lines of manufacturing practice are followed. The need for a grade that would be suitable for general purposes has brought about the development of a sheet which would be ductile and still retain the rust resistance of the oven lining grade. New units are now being installed at the mills which will make it possible to offer this general purpose sheet as well as the oven lining grade.

The application of the coating to open hearth steel sheets is one of hot dipping at a very high temperature—so high, in fact, that it is probable no other coating is applied, or could be applied, satisfactorily under similar conditions. The method of coating is patented and the special composition of the coating is well guarded. Numberless tests have shown that Wilder Metal withstands heat, exposure, condensation, salt water, acid fumes, and other corrosive conditions to a remarkable degree. The cost is lower than that of any other known material with equal qualities of resistance.

While Wilder Metal is only offered at present in the form of sheets, it is possible to process small stamped parts and careful consideration is given to this particular line. It is felt that the profitable uses of Wilder Metal are so far from being fully known that the company encourages requests for sample sheets in any reasonable quantity for experimental purposes. Local representation is handled from the company's district sales office in the Dime Bank building. The factory is located in Niles, Ohio.

General Motors Officer Heads Auto Engineers

H. M. Crane, who was first vice-president of the Society of Automotive Engineers, and who is technical assistant to A. P. Sloan, Jr., president of the General Motors Corporation, was elected to the presidency of the society at its recent annual meeting.



H. M. CRANE
New President-elect of the Society of Automotive Engineers

Other officers are: E. A. Johnson, first vice-president; W. R. Strickland, of the Cadillac Motor Car Company, Detroit, second vice-president, motor car engineering; J. F. Max Patitz, Milwaukee, second vice-president, tractor engineering; H. L. Pope, Paterson, N. J., second vice-president, aviation engineering; T. B. Fordham, Dayton, O., second vice-president, stationary internal-combustion engineering; W. C. Ware, Geneva, N. Y., second vice-president, marine engineering; C. B. Whittelsey, treasurer. W. A. Chryst, Dayton, O., F. W. Gurney, Jamestown, N. Y., A. J. Scaife, Cleveland, O., J. H. Hunt, Dayton, O., A. K. Brumbaugh, Ardmore, Pa., and M. P. Rumney, Detroit, were elected councilors.

HUDSON MOTOR ELECTS

The Hudson Motor Car Company, Detroit, at its annual meeting re-elected the following officers: R. B. Jackson, president and general manager; W. J. McAneeny, vice-president and treasurer; H. E. Coffin, second vice-president; O. H. McCormack, third vice-president; A. Barit, secretary. R. D. Chapin is chairman of the board which comprises in addition to the officers, G. G. Behn, J. W. Beaumont, E. E. Staub, and S. I. Fegete. The directors have declared the regular quarterly dividend of 75 cents, payable March 1 to stock of record March 20.

DETROIT FIRE ELECTS

The Detroit Fire & Marine Insurance Company elected the following directors at its annual meeting: C. L. Andrews, Junius E. Beal, Edward H. Butler, William T. Barbour, Lawrence K. Butler, Charles A. DuCharme, Samuel T. Douglas, Charles A. Dean, D. E. Heineman, J. P. Hemmeter, A. H. McDonell, R. McC. Brady, S. T. Miller, W. V. Moore, Charles A. Reekie, Joseph G. Standart, Edward C. Van Husan and Charles R. Wells.

USE MOTOR WHEEL PRODUCT

Tally of the wheels on the 345 cars exhibited at the National Automobile Show in New York City showed that 154 were on steel wheels, and 111 of these were made by the Motor Wheel Corporation of Lansing. There were 148 cars on wood wheels and 23 on wire, but the Motor Wheel representatives made no tally of these. There were 52 cars equipped with balloon tires, requiring specially made disc wheels of modified diameter, and 39 of these were made by the Lansing company. Motor Wheel is making special types of both steel and wood wheels for the balloon tires.

YALE-TOWNE EXHIBITS

The Yale & Towne Manufacturing Company, of Stamford, Conn., is showing locally for the first time, in booths 164-5 at the Detroit Auto Show, its newly perfected 4,000-pound industrial truck and electric tractor.

J. L. Carson has established headquarters in Detroit, at the Madison-Lenox hotel as district representative of the company.

EARNS $3.48 A SHARE

Sales of the Hupp Motor Car Corporation, Detroit, during the first 11 months of 1923 totaled $36,134,304. The net profit, after cost of sales, depreciation, expenses, including federal taxes and interest, was $2,023,519. After taking of preferred dividend the balance was equal to $3.48 a share earned on the $5,711,310 outstanding common stock, par value of which is $10 a share.

BUILDERS ELECT DIRECTORS

The new directors of the Detroit Builders' and Traders' Exchange elected this week are: Clyde C. Crane, of the Clyde C. Crane Company; Fred Galster, Acme Wire & Iron Works; Harvey Zens, Harvey Zens Company; Fred Corrick, Corrick Brothers; Howard Rothermel, Western Waterproofing Company. The following directors are those held over: Edward M. Harrigan, Harrigan & Reid; Earl A. Hurd, W. F. Hurd Lumber Company; Peter J. Maul, Maul Company; William Brown, Carey Roofing Company. The new board will elect officers at its first meeting next Tuesday at the exchange.

Buick's Twentieth and Greatest Year

IT is now twenty years since Buick first began to manufacture and sell Buick motor cars.

Significant of Buick's achievements and position in the industry throughout these two decades are Buick's accomplishments in this, its twentieth year of existence.

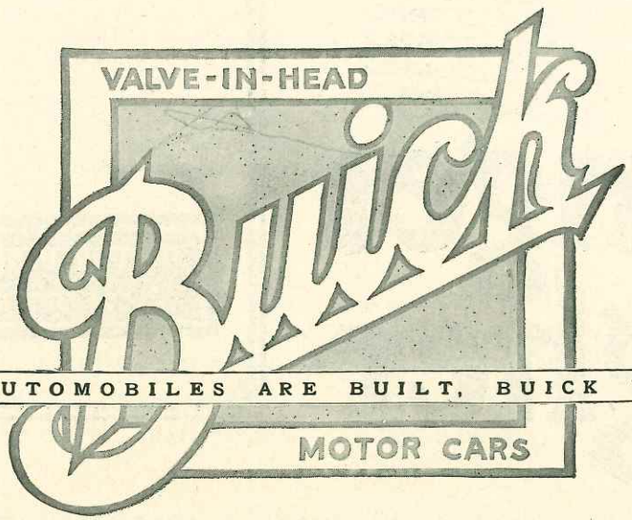
During 1923 Buick built its millionth car.

During these same twelve months Buick broke all production records for cars of its class.

In August, 1923, after long and intensive research, Buick provided the public with the proved Buick four-wheel brakes—just as more than twenty years ago Buick added to motor car utility and efficiency by producing the valve-in-head engine.

And, for the sixth consecutive year, Buick occupies first place at the National Automobile Shows—a position awarded upon volume of business.

Noteworthy as is this record of past achievement, it assumes added meaning as a substantial promise of an even more successful future. For, from the rich background of experience—with all of its unequalled manufacturing facilities—and inspired by a deep sense of personal obligation to Buick friends, owners and the general public—Buick will seek ever to maintain on an even higher level its position as the Standard of Comparison.



WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

BUICK MOTOR COMPANY, Detroit Branch
General Motors Building

Owen & Graham Co.
2843 E. Grand Blvd. at Oakland

Louis Rose Buick Co.
12893 Woodw'd Ave., Highland Pk.

Harley Buick Co.
3752 Cass Ave.

Bemb-Robinson Co.
444 East Jefferson Ave.

Pfent & Decker
8740 Mack Ave.

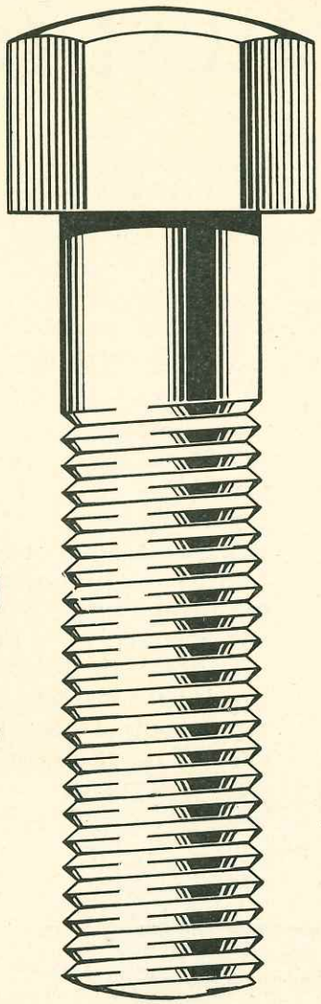
Siegel-Zeckendorf Co.
4234 Woodward Ave.

Telotte Buick Co.
8911 Grand River Ave.

West Side Buick Co.
5836 West Fort St.

Stanley Krajenke
11620 Jos. Campau Ave.

Permit us to Introduce



30 Per Cent Stronger Tougher

BETTER CAP SCREWS

DEVELOPED BY MICHIGAN MANUFACTURER

ANNOUNCEMENT has just been made by the Victor-Peninsular Company, Detroit, of a radical improvement in Victor Cap Screws which adds to them considerable strength. This development is particularly interesting to the automotive industry, since Victor screw products have been known for their universal toughness and strength, qualities that are essential in cap screws used in the manufacture of automobiles.

Victor-Peninsular Company is the only company in Michigan making "upset" screws for commercial distribution. However, this company has had its chemists working for some time to find a way to increase the strength and durability of screw products for automobile manufacture.

Refinement of grain, combined with tensile strength, eliminates crystallization and weakness. Up to this time, eight to fifteen points of carbon content, universally contained in steel used for headed work, was considered the limit. However, all New Victor Cap Screws are manufactured from steel containing twenty to twenty-seven points of carbon content. This formula, worked out by Victor chemists, already has been thoroughly proved by the most rigid tests to give Victor Cap Screws every desired factor. The fine grain texture remains while the tensile strength is greatly increased.

Thus it is claimed that Victor Cap Screws are at least 30 per cent tougher and stronger than any yet produced for commercial use.

VICTOR-PENINSULAR CO.
DETROIT, MICH.

VICTOR-PENINSULAR CO.

DETROIT, MICHIGAN

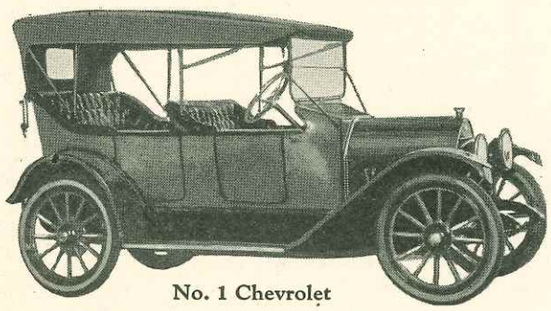
TEN YEARS' PROGRESS

for Economical Transportation

CHEVROLET

1914
SPECIFICATIONS

Horsepower, S. A. E.	21.7
Weight	2500 lbs.
Tires, 32 x 3½, fabric	(about 4000 miles)
Top	Two-man, with side supports
Gas Feed	Air Pressure
Windshield	Folding
Rims	Detachable
Cooling	Thermo system
Rear axle gears	Straight teeth
Oiling system	Splash
Chassis lubrication	Grease cups
Back curtain light	Celluloid
Side curtains	Stationary
Finish	Paint, air dried
Gasoline mileage	About 18
Service brake	Clutch combination
Wiring harness	Open
Insurance rating	B
Terms	Cash
Service stations	About 1000



No. 1 Chevrolet

Price, 1914, $1000

1924
SPECIFICATIONS

Horsepower, S. A. E.	21.7
Weight	1880 lbs.
Tires, 30 x 3½, fabric	(about 8000 miles)
(Cord Tires on all closed models)	
Top	One man
Gas feed	Suction
Windshield	Double ventilating
Rims	Demountable
Cooling	Pump circulation
Rear axle gears	Spiral bevel
Oiling system	Pump, forced feed
Chassis lubrication	Alemite
Back curtain light	Glass
Side curtains	Open with doors
Finish	Baked enamel
Gasoline mileage	About 24
Service brake	Separate brake pedal
Wiring harness	In conduits
Insurance rating	A
Terms	As desired
Service stations	About 20,000

Present Chevrolet

Price, 1924, $495

THE pronounced leadership of the automobile business in restoring the old-time purchasing power of the dollar is best illustrated in the increased quality and decreased price of a Chevrolet.

The reductions in prices have more than doubled the purchasing power of the consumer's dollar, although the specifications and design show marked increase in quality.

Big volume production made these economies possible. Note the ten years' record of Chevrolet sales:

Ten Years' Record of Chevrolet Sales

1914— 5,005	1919—151,019
1915— 13,500	1920—155,647
1916— 69,682	1921— 77,627
1917—125,399	1922—242,373
1918— 93,814	1923—483,310

We are the world's largest manufacturers of quality cars, having attained this leadership through offering the utmost possible per dollar value in modern quality automobiles.

Before buying any car at any price *See Chevrolet First.*

Chevrolet Motor Company, Detroit, Michigan

Division of General Motors Corporation

Five United States manufacturing plants, seven assembly plants and two Canadian plants give us the largest production capacity in the world for high-grade cars and make possible our low prices. Chevrolet Dealers and Service Stations everywhere. Applications will be considered from high-grade dealers only, for territory not adequately covered.

Prices f. o. b. Flint, Michigan

Superior Roadster	$490	Superior Commercial Chassis	$395
Superior Touring	495	Superior Light Delivery	495
Superior Utility Coupe	640	Utility Express Truck Chassis	550
Superior 4-Pass. Coupe	725		
Superior Sedan	795		

Motor Factories Expand

Millions Being Spent in Plant Extensions To Meet Increasing Demands for Products

THAT the optimistic outlook for 1924, as expressed by leaders in the automotive industry is not merely vocal on their part is evidenced by the large construction programs which have just been completed or which are now being carried out by many of the manufacturers. The need of enlarged facilities was seriously felt by many makers in 1923 and it is to remedy this condition and prepare for the successful period ahead that has induced these producers to enlarge their plants and to install modern, more efficient machinery.

The most notable development is that recently announced by the Ford Motor Company. In spite of the fact that this company manufactured over 2,000,000 cars in 1923, or over half of the production of the combined automobile factories of the nation, it was not able to keep up with the demand for its products. To adequately supply the anticipated increased demand for the present year, the company has started out on an expansion program entailing an expenditure of from $110,000,000 to $150,000,000, the entire program calling for completion in 1924. This is by far the greatest building program ever undertaken in the industry by an individual manufacturer and covers every section of the United States.

An entirely new plant has just been put into operation by the Lincoln Motor Company at its local factory. This gives the company 388,000 additional square feet of floor space. The plant houses the entire machine shop for Lincoln, is all on one floor and has no division walls in the entire building.

The next most important development in point of size and influence in Michigan is that of the Buick Motor Car Company, of Flint. The company will spend $11,000,000 this year for additions to its main plant in Flint and its Detroit plant. Harry H. Bassett, president of the company, has announced that when these increased facilities have been provided, the plant will have a capacity of 1,200 Buicks a day, 750 at Flint and 450 at Detroit.

This construction work, which is part of the general expansion program of the General Motors Corporation, will include additions to the office building and motor plant at Flint, and additions to the heat treating plants, the sheet metal plants and the warehouses, at both Detroit and Flint.

A new automotive plant, which is said by architects and engineers to be the last word in structures of this kind, has just been completed for the Jewett plant of the Paige-Detroit Motor Car Company, Detroit. Manufacturing operations were started in the new plant on January 2, the plant having a daily capacity of 500 cars. The new unit is approximately 1,300 feet long and 560 feet wide.

The major building program, which was inaugurated more than four years ago by the Hupp Motor Car Company, Detroit, has just been completed. Last year the company was unable to meet the demand for its cars during the rush season and had to turn down over 7,000 orders, according to a factory announcement. The completion of its expansion program is expected to eliminate this condition for the time being at least. The plant now has a capacity for manufacturing 50,000 cars annually and its production schedule for 1924 has been placed at that figure.

Dodge Brothers, Detroit, is another concern which had much ado during the past season to make its production facilities meet the demand for its products. The completion of a new assembly plant, which was put into operation a short time ago, has increased the plant facilities to approximately 1,000 cars a day. This addition places the company in a better position than ever before to build their share of the huge output scheduled for 1924. The company at present has a floor space in excess of 100 acres and employes some 20,000 men.

One of the most interesting examples of what keeping an automobile plant modern means in these days of improvements and new inventions was witnessed during the latter part of 1923 when the Olds Motor Works, Lansing, scrapped a large portion of its manufacturing equipment to make room for new. While the equipment on hand was only a few years old, it had become obsolete due to new designs and advanced methods of manufacture. With the production of its new line of six-cylinder cars it was found necessary to re-equip the company's immense plant to insure rapid production and reduce manufacturing costs. This meant the expenditure of more than $2,000,000 for new machinery alone. With the installation of this work completed, the company is using less space than ever before and is turning out more automobiles per day.

In his first statement embracing all phases of additions and improvements to its equipment and manufacturing processes, A. U. Widman, manager of manufacturing of the Cadillac Motor Car Company has revealed the extent of the changes which have been taking place within the new Cadillac plant since it was built two years ago.

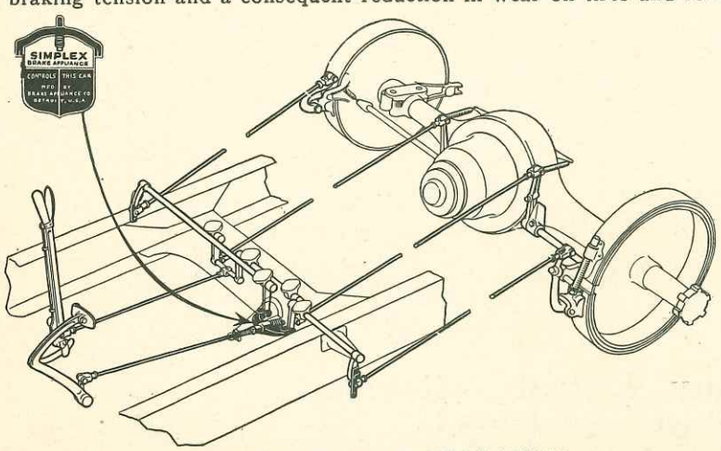
"We have just completed the first unit in our new foundry building program. It is the sand storage building, 60 by 180 feet, and with a storage capacity of 8,000 tons. It is being followed by five other units, three main foundries for iron, brass and aluminum, a pattern-making and pattern-storage building and a metal reclaiming building, the whole addition to cover seven acres of land.

"In April of last year was completed a new salvage building devoted to the sorting, classifying and storage of metal chips and turnings. While we believed at the time of building the new plant that we had made ample provision for electric power, we have just found it necessary to install additional giant transformers to accommodate the added electrical power needed to carry the load which has been gradually increasing."

Equalizes Braking Power

The outstanding feature of cars manufactured in 1923 was improvement in braking devices. Changes were incorporated by most of the manufacturers. One of the appliances which gained favorable attention was the Simplex Brake, as it is called, which is being manufactured in Detroit, at 3609 Gratiot avenue.

By means of this brake equalizer, a quick, even application of braking tension and a consequent reduction in wear on tires and real



SIMPLEX BRAKE INSTALLATION

axle assembly is accomplished. It is, in effect and operation, a compensating equalizer which conveys the braking power evenly and smoothly to the brake drums, thereby eliminating skidding and brings the car to a stop in less distance and with less energy on the foot pedal.

The appliance is the invention of an auto mechanic who conceived the idea of placing the equivalent of the clutch spring in the brake assembly of a car to give the same smoothness to the stopping of the machine that the clutch spring was already giving to the starting. After considerable experimental work, he finally succeeded in arranging a curved equalizing bar with a coil spring in the curvature and by applying the pull from the foot pedal through both the spring and the bar obtained the desired results. Patents were taken out in 1921 and in the same year the Underwriters Laboratories gave the device their unqualified approval, being the first device of its kind to be so approved.

The appliance is of particular advantage in heavy traffic centers and many of the hospitals of Detroit have seen fit to equip their ambulances on account of its smoother riding qualities.

Ford Has New Truck Model

The Ford Motor Company enters the new year with a new product, an all-steel combination truck body and cab mounted on the standard Ford one-ton chassis to be sold as a complete unit. The new body is of the open express type, so constructed that it may be readily converted into other body combinations by using stakes, side boards, canopy top, screen sides, etc.

The body is built of steel to withstand the most severe usage and presents a new development in construction. The steel sills are reinforced with wood in order to lessen vibration and road shocks. The loading space is seven feet two inches in length by four feet in width and of convenient and practical depth. The end gate is strongly braced and secured by heavy chains which hold it in position when lowered. The cab, also of steel construction, is extra roomy. The seat is of artificial leather, well cushioned on four-inch springs. Protection from the weather is afforded by close-fitting door curtains mounted on uprights and opening and closing with the door. An oblong window in the back of the cab gives ample facilities for rear vision, adding to the safety as well as the convenience of the driver.

This One Thing Only

SEE the True Blue Oakland before you choose your car. This one thing only is all we ask.

Next to a home, an automobile is the average family's greatest single expenditure. Upon the wisdom of your choice depend your comfort, satisfaction and safety—day in and day out.

Surely your consideration of motor cars must therefore include a careful examination of every automobile that can possibly give you greater satisfaction for your money.

An advertisement can list specifications and describe features. But only when you examine these features and test them in actual driving can you know truly what they mean to you as a motorist.

This is why we ask this one thing only. See the True Blue Oakland before you make your selection. Examine it. Ride in it. Drive it.

Only when you do, will you appreciate why the True Blue Oakland is the most advanced car in its class.

—most advanced because no limitation was placed upon Oakland engineers other than that they design a powerful, smooth-running, balanced light six of extreme endurance.

—most advanced because every unit works in complete correlation with every other unit.

—most advanced because the car contains every tried and proved feature that the latest developments in automotive engineering make possible.

To create such a car, Oakland engineers, in cooperation with General Motors experts, worked for two years. Not one, but several models were built.

The car was tried out for months under every driving condition. When announced, it was an automobile of known quality.

Included in its construction are more improvements than in any other car in its class.

Name them over, and you will not find one missing: Brand new engine with automatic spark advance, four-wheel brakes, permanent top, centralized controls on steering wheel, special Oakland permanent satin-wax finish, disc wheels, etc.

And the price—only an enlargement of factory facilities and specially designed and exclusive Oakland machinery makes possible the value Oakland offers.

THESE are the facts. You can easily prove them for yourself. The power, endurance, smoothness, economy, and safety of the Oakland Six have been demonstrated to motorists, in every state of the Union, by Oakland's six famous True Blue Travelers.

Their records have been duplicated by thousands of True Blue Oaklands now in service, some with mileage records up into five figures.

That is why we emphasize this one thing only. See the True Blue Oakland. Examine it. Ride in it. Drive it. That tells the whole story.

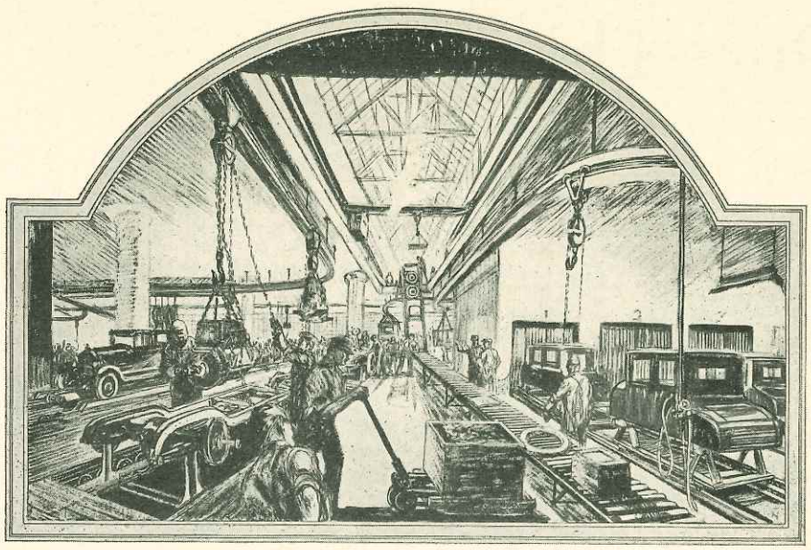
OAKLAND MOTOR CAR COMPANY, PONTIAC, MICHIGAN

True Blue Six

Touring Car

$945

at factory



Set it down as a fact that the most successful cars displayed at this show are those making the fullest use of the proper kind of material handling equipment. The part that this Company has played in bringing about this success is a source of considerable pride to us. Our continued growth indicates the efficiency of our service.

The CECIL R. LAMBERT CO. Inc.
MANUFACTURING ENGINEERS
Material Handling Equipment
DETROIT MICHIGAN

MILLER-SELDON MOTORS SUPPLIES ELECTRIC ELECTRICAL COMPANY CONSTRUCTION

ELECTRICAL SUPPLY JOBBERS AND ELECTRAGISTS
MOTORS SOLD—RENTED—REPAIRED—EXCHANGED

Direct Factory Representatives of
JEANNIN ELECTRIC CO.—SINGLE PHASE MOTORS
SUPREME ELECTRIC CO.—POLYPHASE MOTORS

MAIN 6464 1259 PARK PLACE, DETROIT

N. A. D. A. MEETS JAN. 29

The following is the program for the seventh annual convention of the National Automobile Dealers' Association, which will be held at the LaSalle Hotel, Chicago, January 29 and 30:

First Day—Call to order, G. G. G. Packham, Cleveland, president; report by general manager C. A. Vane; "Automotive Forecasts for 1924," by J. H. Collins, manager research department, Chilton Publishing Company, Philadelphia; "Five Per Cent," by C. E. Gambill, ice president of the association and president, Gambill Motor Car Company, Chicago; "Dodge Brothers and its Dealers," by John A. Nichols, Jr., sales manager, Dodge Brothers, Detroit; "Shakespeare as a Salesman," by William B. Burrus, sales consultant, Kansas City, Mo.; "Building a Sales Organization," by G. H. Abercrombie, sales manager, Fuller Brush Company, Hartford, Conn.

Second Day—"National Automobile Dealers' Association Records for Dealers Dollars," by Harry M. Fancher, secretary-treasurer, Tom Botterill, Inc., Denver; "the Appleby Plan," by James E. Appleby, of the Percy Chamberlain Associates, Inc., Detroit; "the Atlanta Statistical Bureau," by R. H. Martin, president, Martin-Nash Company, Atlanta, Ga.; "Cleveland Dealers Green Seal Results," by R. J. Schmunk, Hudson-Essex distributor, Cleveland; "National Automobile Dealers' Association Leadership—A $50,000,000 Asset," by Lynn M. Shaw, assistant general manager of the association.

AUTO INSURANCE LOWERED

Several million dollars will be saved to the owners of private passenger automobiles throughout the country as a result of a revision of rates for automobile accident insurance just put into effect by the National Bureau of Casualty and Surety Underwriters, New York. The average reduction for the country as a whole amounts to approximately 6 per cent, while some cities and districts show a reduction as high as 20 per cent.

The new rates for the first time have been based upon the actual accident experience of the various cities and each city is rated accordingly. The new plan makes it possible for each city to benefit directly from any effective safety work that it may have done.

PIERCE ADOPTS NEW BRAKES

The Pierce-Arrow Motor Car Company, of Buffalo, N. Y., which for 23 years has been making the Pierce-Arrow cars, and which is one of the pioneers in the industry, is one of the latest to announce the adoption of the four-wheel brake.

BANTA RICK'S SALES MANAGER

A. J. Banta, well known throughout the automobile industry, with which he has been connected in various sales capacities during more than 20 years, has been appointed sales manager of the Rickenbacker Motor Company, of Detroit, succeeding W. J. Drumpelmann, who resigned. In 1904 Mr. Banta became Chicago distributor for the Locomobile, which now is one of the Durant products and which was always one of the highest price cars made in America. For 14 years Banta sold these cars. Lated he joined the old Maxwell-Chalmers organization, after which he became vice-president and general manager of the Clydesdale Motor Truck Company.

SALES MANAGER APPOINTED

Kelly R. Jacoby, well known in the automobile industry as former vice-president and sales manager of Earl Motors, Inc., Jackson, and as sales manager of the Willys-Overland Company, has been appointed southern sales manager for the Chandler Motor Car Company, Cleveland. Mr. Jacoby will have charge of a new district created by a re-division of territory, due to increased sales. Virginia, Tennessee, Arkansas, Oklahoma, Texas—except the El Paso area—and all south of these states comprise the new district.

In WHEELING STEEL

We offer the AUTOMOTIVE AND ALLIED INDUSTRIES quality and service from nine modern complete steel mills located strategically along the Ohio River, supplied with raw materials from our own mines and with a self-contained annual capacity of over a million gross tons. Manned by over twenty thousand trained men; and back of this organization is over seventy years of experience and reputation in iron and steel making.

SHEETS—Automobile Body, Fender and Hood, Metal Furniture, Long Terne, Black and Blue Annealed in all finishes and qualities, Frame Steel, Disc Wheel Stock, Tin Plate, Galvanized, Portsmouth Iron and Ohio metal; (Copper Bearing) and Electrical.

PLATES—Sheared, Universal, Special Stamping Grades, Groove Rolled Strip.

WIRE— Black, Bright, Annealed and Galvanized. Cold Heading, Spring and Special.

NAILS— Wire and Cut—All styles.

PIPE— Merchant and Line—Special Weight.

WHEELING STEEL CORPORATION

GENERAL OFFICES, WHEELING, W. VA.

District Office, Detroit, 525 Book Building

J. O. Tucker, Dist. Sales Mgr.

Telephone Cad. 8100

LET THIS MAP BE YOUR GUIDE

Note How the LINGEMAN Properties COLLEGE PARK

Are Entirely Within the Detroit City Limits—Actually Surrounded by the University Development and Ready for Building in 1924—This Means

FIRST TO DEVELOP—QUICKER and GREATER PROFITS

MORE THAN A SQUARE MILE OF RESTRICTED HOME SITES

The Greatest Investment Opportunity Since JOY FARM

RESTRICTIONS

All Homes to Be of Brick, Stone or Stucco

PRICES

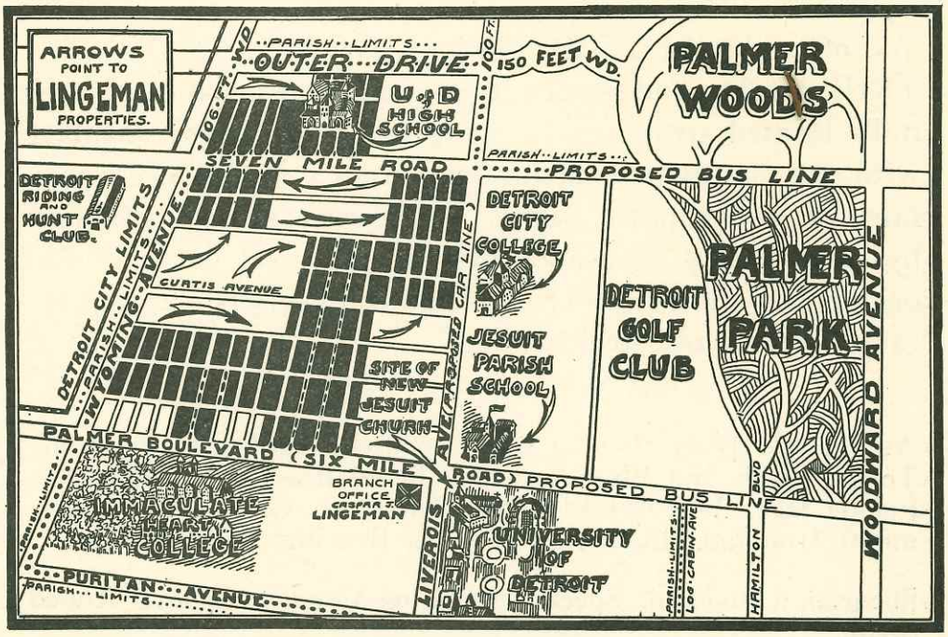
AS LOW AS

$1100

LARGE LOTS

WIDE STREETS

PARKED ENTRANCES



All Improvements

Ready for Building in 1924

EASY TERMS 10% DOWN

Homes in This Section on Easy Terms

We Build and Take Your Lot as Down Payment

MAIL THIS COUPON

CASPAR J. LINGEMAN

PHONE CADILLAC 5334 SUITE 1321-1322 FIRST NATIONAL BANK BLDG.

Branch Office—LIVERNOIS AND SIX MILE ROAD

Without Obligation Send Me Information on Your Close in College Park Properties.

Name .....

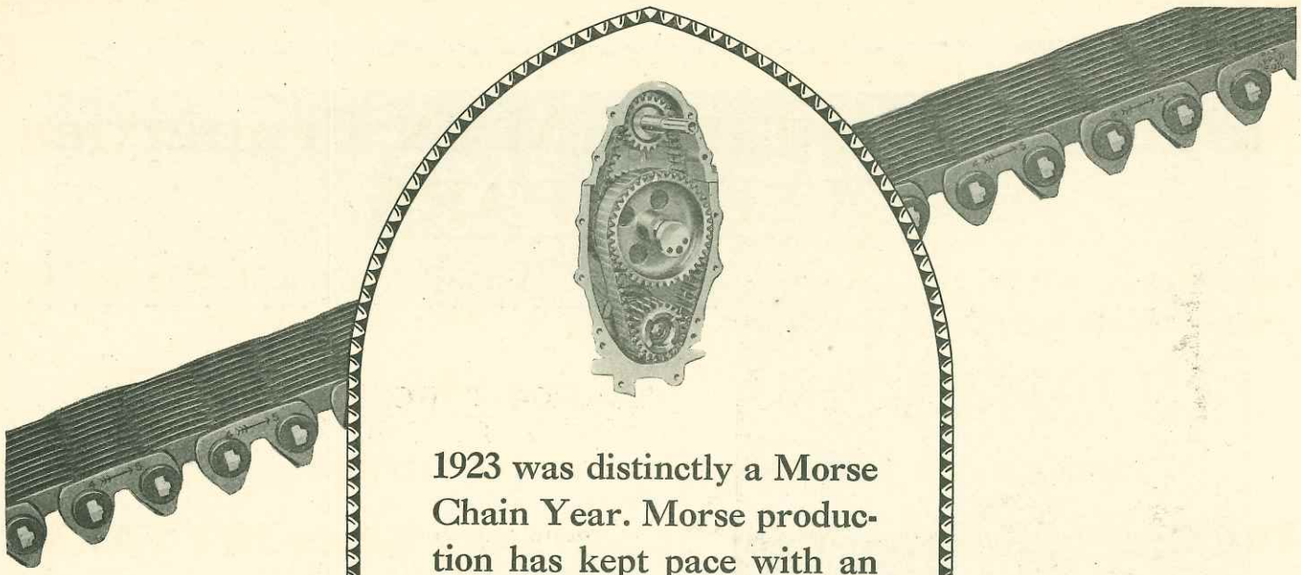
Address ..... Phone .....

JUST LAUNCHING A $5,000,000 SALES CAMPAIGN!

THE CREAM OF DETROIT PROPERTY

Wonderful Opportunity for Automobile and Real Estate Salesmen

SEE MR. LINGEMAN MORNINGS, 1321 FIRST NATIONAL BANK BLDG.



1923 was distinctly a Morse Chain Year. Morse production has kept pace with an extraordinary demand from 90 per cent of all motor car manufacturers using chain front end drive. 1924 will see a still greater number of cars using Morse Chains—and it gives us great satisfaction to say that Morse will meet all the engineering and production requirements of the future as in the past.

Morse Chains are now Standard Equipment in the Following Cars

Anderson Six	Crawford Six	Lincoln Eight	Rollin Four
Auburn Six	Davis Six	Moon Light Six	Stearns Four
Barley Six	Essex Four	National Six	Stearns Six
Cadillac V Eight	Essex Six	Northway Four	Sterling-Knight Six
Case Six	Flint Six	Oakland Six	Studebaker Light Six
Chalmers Six	Fox Six	Packard Single Six	Star Four
Chandler Six	Hupmobile Four	Packard Single Eight	Templar Four
Chrysler Six	Hudson Six	Packard Twin Six	Winton Six
Cleveland Six	Jordan Six	Peerless Six	Continental Motors
Columbia Six	Lafayette Eight	Rickenbacker Six	

MORSE CHAIN COMPANY

Main Office and Works
ITHACA, NEW YORK

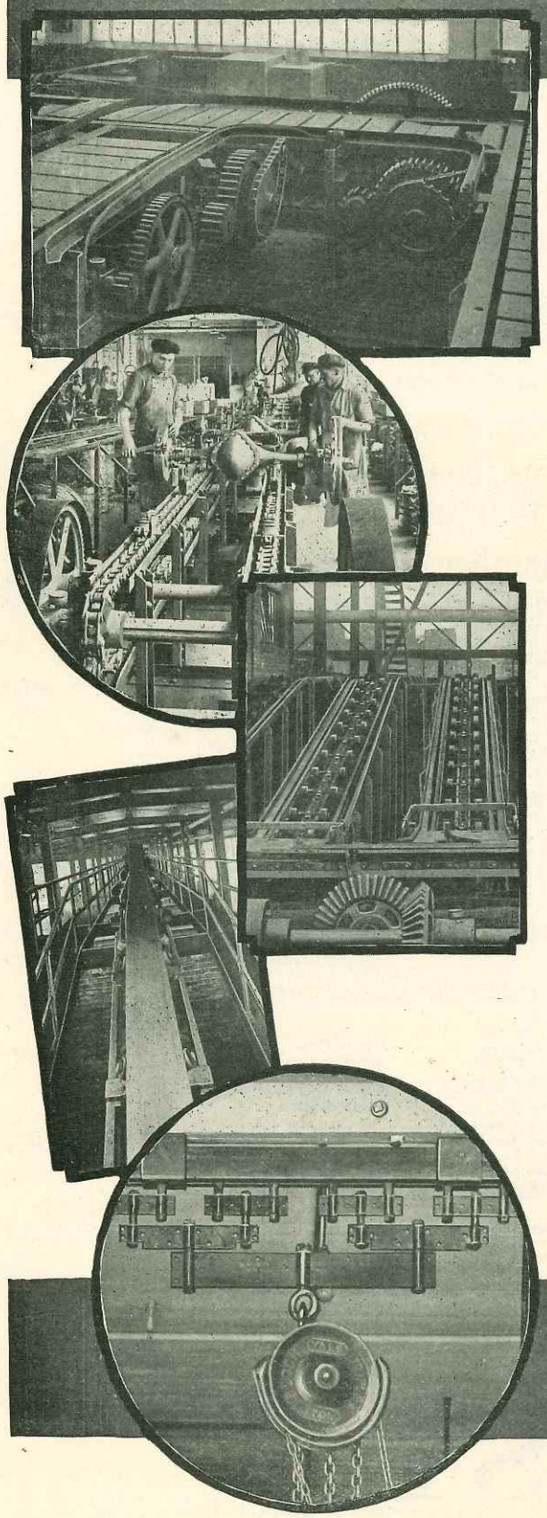
Sales and Engineering Office
DETROIT, MICHIGAN

THE CONSTANT PRESSURE ANGLE CHAIN

MORSE

GENUINE SILENT CHAIN

CONVEYORS *That* CONVEY



SIGNIFICANT WORDS—"CONVEYORS THAT CONVEY"

* * * *

You have a right to expect—you ought to demand that your *conveyors convey,* actually do the work for which they are intended; actually do the work, no matter whether they are belt conveyors—slat conveyors—progressive assembly conveyors—screw conveyors—overhead trolley or track conveyors, or what not.

That is your due, and more

BUT—

Part of the burden is yours.

* * * *

Safeguard yourself.

Place your conveyor problems—no matter what they are—before conveyor experts.

Call in men trained—trained not only in conveyor designing, but trained practically as well.

Be sure that your conveyor designs are backed by actual experience.

Insist upon dealing with an organization prepared and able to manufacture conveyors to suit your individual needs.

Place your conveyor orders with a company who will guarantee satisfactory operation.

* * * *

Then you can be sure you will have—

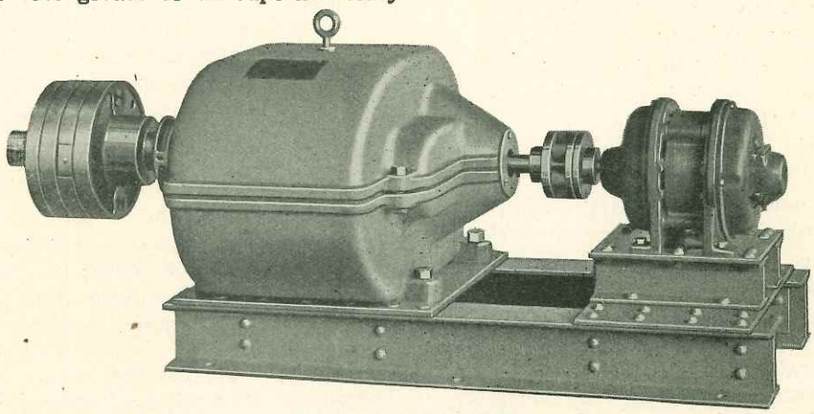
CONVEYORS that CONVEY

Palmer-Bee Company
DETROIT

Palmer-Bee Mill Type Speed Reducers

EIGHT GOOD REASONS WHY THEY ARE THE ULTIMATE STANDARD

1. They are the most ACCESSIBLE reducers made. The entire mechanism is carried in the lower half of housing with an easily removable cover.
2. Every shaft is a THROUGH SHAFT supported in a bearing at each end. There are no overhung or divided shafts.
3. THEY HAVE NO gyrating planetary pinions or internal gears. No diaphragms, floating discs or overhung studs.
4. LUBRICATION is by splash system automatically flooding every bearing and entire mechanism. No grease or oil cups necessary.



PATENT APPLIED FOR

Palmer-Bee Mill Type Speed Reducer, mounted on steel sub-base with motor, and Palmer-Bee High Speed and Mill Type Flexible Couplings on high and low speed shafts, respectively, making an ideal reduction unit.

5. The extreme QUIETNESS and COOLNESS of operation are two of the several reasons why this reducer is so highly efficient and durable.
6. The entire mechanism is FULLY ENCLOSED in a LEAK-PROOF, DUST-PROOF, ACCIDENT-PROOF and FOOL-PROOF housing.
7. The ratio may be INCREASED or DECREASED at any time by substituting one set of gears for another since all parts are made interchangeable.
8. They have TWENTY YEARS of engineering and power transmission experience built into them.

Save Power—Avoid Accidents—Increase Production

Furnished in Ratios Up to 4,000 to One

Simplicity, Accessibility, Efficiency and Durability Are the Super-Features which Warrant You in Standardizing on

THE PALMER-BEE MILL TYPE SPEED REDUCER

MANUFACTURED BY

Palmer-Bee Company

DETROIT, MICH.

Plant No. 1
2774-2804 E. Grand Boulevard.

Plant No. 2
7341-7403 Orleans Street.

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DETROIT, SATURDAY, JAN. 19, 1924.

The Motor Show of 1924

THE DETROIT MOTOR SHOW of 1924 will begin with the day of this issue of this publication. It is the twenty-third motor car show to be held in Detroit. Its very number is striking. Here is an industry which, in the popular mind, had its beginning but yesterday. Yet it is nearing a quarter century of organized history. It has had its successes and its casualties. Men have started in it at the beginning, achieved prominence and passed out by death.

Even the necrology of this new business contains names of great manufacturers of the United States. The two Dodges, Maxwell, E. R. Thomas, names familiar to the early days of the trade, are now numbered among those of its honored dead.

There have been amalgamations and consolidations, so that to trace the origins of present day producing companies is like going into the history of the railroads and their earlier components. There have been continued unparalleled successes, the like of which the country has rarely seen; and there have been honest beginnings, blue experiences and recoveries that were unexpected. Despite the great number of works which have been established for the industry countrywide, the processes of business have eliminated some, joined others together, and seem still operating in the direction of diminishing the number of leading makers and their controls. Today a dozen leaders exhaust the list of manufacturers whose names are on the tip of tongue.

This new trade is represented by 15,000,000 actively operated vehicles in the United States. What number the graveyards of motor cars which have seen their day may contain, few people can know. But replacements and wear-outs, all taken together, it is not improbable that the number of motor vehicles produced in this less than a quarter century old trade comes close to 17,000,000. In the past year more than 3,000,000 vehicles were made. The wiseacres have been preaching about the approach of saturation of the market. Meantime the practical ones, they who make and sell the motor vehicles, are buying more steel and more materials of other kinds, and are expanding the structures, already great, in which they are going to continue building them.

What a trade this is that is holding its annual western festival in Detroit during the forthcoming week. It is peculiarly the industrial child of Michigan. The demands upon the industry have made a million and a quarter industrial area out of the Detroit that was four hundred thousand people when this new demand commenced. It has helped make Grand Rapids nearly 150,000 souls out of 85,000 less than a quarter century ago. It has quadrupled Flint in population and doubled Jackson and Lansing. It helped Bay City and Saginaw catch up with the losses of the decadent lumber trade and stabilized them for greater growth than they ever enjoyed before. It has established and maintained foundries at Plymouth, Romeo, Howell, Ecorse and a score of other places in Michigan which were mere market towns in the earlier day and are now seats of productive industry. Talk as one will, recognize as we must the diversification of industry in Michigan that existed before the motor car came into being and has increased since, the motor industry has been the one outstanding feature in the growth of Michigan industry that has brought this state into the forefront of the group of sister states that excell in the production of things made in shop and factory.

The humanizing influence of the motor car has been felt nowhere to a greater degree than in this state of ours. Seventy thousand miles of mud roads have been so far improved and made serviceable to the highest degree that practically one mile in two are passable at all seasons of the year, more than 20,000 miles of varying grades of perfection from the graveled by-road to the concrete paved trunk line stretching from the southern boundary of the state to the Straits of Mackinac. Field and fen have been opened to the denizen of the smoky city. The workingman of today has more of access to the forest and the interior lakeside in less of wasted time, with smaller expenditure of money, than the plutocrat of thirty years ago had in his day and generation. The city boys and girls of today are growing up with a wisdom about the open and a knowledge of nature at her best that the youngsters of a quarter of a century ago could not hope to attain. The country school, ungraded, taught by a single struggling teacher, has given place to the consolidated school of graded quality, its pupils gathering to the new kind of a seat of modest learning in their own mechanical transportation units, or being carried at a public expense that is really an economy when the results are considered.

Great fortunes have been piled up as the result of supplying the demand for motor transportation, and, singular as it may seem, not one of them has excited the envy of the multitude, all too eager to carp at fortunes created by other lines of business. The piling of wealth like Pelion or Ossa which has characterized Mr. Ford's career, the tremendous fortunes of the Dodges, the accumulations of Olds, Mott, Nash, Durant and the other motor kings hasn't caused the batting of an eyelash nor a whimper of dissatisfaction. People seem proud of those who have made wealth in the realm of motordom. And such fortunes! Look over the list of the earlier multimillionaires of Michigan. Mr. Ford's fortune could buy the estates of Francis Palms and James McMillan, and David Ward, and Wellington Burt, and Eber Ward and John M. Longyear, and David Whitney and a lot of the earlier millionaires of iron and timber at their par values at the decease of their owners and not have a dent made in its principal by the operation. Talk of the Romance of Steel, it doesn't hold a candle to the Romance of Motordom.

This is the magic trade which is celebrating its holiday, all dressed up and going ahead definitely to some point of greater success and development. How far it has yet to go on is in the lap of the gods. But the fact remains that there is no single new development of business that doesn't call for more motor cars. The young city doctor is turned into the equivalent of three doctors by his runabout, while the country veterinary can bring relief to the domestic animals of the countryside thrice as fast as did his predecessor of three decades ago. City salesmen of every kind can not work without motor cars. The business of heavy and long distance hauling in cities has been simplified and cheapened by the motor truck. Where a city of a few years ago had a hundred horses it has half a thousand motor conveyances of every kind today. We have come into the age of speed and we will be speedier before some of us are very much older.

So no one can tell exactly what is to be the future of motor transportation. What we do know for sure is that it is the basis of a wonderful industry, a marvelous convenience to mankind, and a mighty good thing to look at in its annual registrations of its development, such as those made in the Detroit Motor Show of 1924.

The Goblin'll Get You, if You Don't Watch Out

TO THE ESTIMABLE folks in the public life of nation, state and city, who want federal departments of education at $100,000,000 per year; soldiers' bonuses at capitalized values of from three to five billions; state institutions and facilities at other great figures; and unnecessary local improvements just to improve the looks of things we commend the following figures of the public debts of this country at the end of the year 1922, which is as close as the census bureau can keep up with the great desire of the American political units to spend money raised on the public credit.

At the end of 1922 the aggregate public debt of the country, of all kinds, was $32,786,715,000, which was just 475 per cent of what it was in 1912.

That meant $301.66 for every man, woman and child in the country when the total amount of debt was totaled up.

The interest on this debt was $12.06 per year for every male and female person in the country. Taking the average family of five, this represents $60.30 which must be paid in interest to the public debtors, willy-nilly.

The indebtedness of state governments was a part of this huge sum. At the end of 1922 it separately amounted to $1,162,648,000, or 175 per cent of what it was 10 years before.

The county debts, for courthouses, jails, drains, bridges and the other things that counties pay for was $1,366,636,000, or 268 per cent of what it had been 10 years before.

To provide for paying this debt out during its period will call for a contribution of $4.53 each year for every man, woman and child in the country, in addition to the interest, and it will take nearly 50 years to pay it off at that rate. Meantime some additional debt will have to be created, and very much more may be created, to throw the period of debt extension into the very remote future.

All of this is in addition to the annual levy of customs duties on what we consume from abroad; the internal revenue taxes on scores of articles of human consumption; the income taxes which so many pay; the state, county and city direct taxes, the rates which we pay for water and other public service, the taxes paid indirectly through the railroads, insurance companies and other contributors for the public to the various treasuries and the inheritance taxes paid when folks die and their property passes on.

These figures constitute a very impressive lesson in the mathematics of taxation. As a matter of fact, the taxes alone represent about 26 per cent of the annual income of the whole people, and the debt a substantial percentage of the entire natural wealth of the people.

Make Automobile Taxpaying Easier

THE SECRETARY OF STATE is having a whale of a time this year getting in the automobile license fees due the state under the law. To begin with, Mr. De Land was delayed in his collection beyond the usual period because of the probability that the special session of the legislature would change the law. Then he extended the period for collection. Then he was confronted with a much bigger list of taxpayers than he had to deal with in the past, the revenue enlargement alone promising to amount to another million of tax. Then he had to deal with a lot of people who wanted their licenses all at once. Through it all the secretary of state and his branch offices have done their work pretty well, considering its magnitude. But the enormity of the job and the eagerness of everybody to get licenses at once, and usually at the last minute, have given ground for the suggestion that the duty of paying automobile taxes ought to be made an easier one to perform.

The greatest difficulty is naturally in the cities, where there are most automobiles and most people to pay taxes. In the city of Detroit there must be 75,000 individual taxpayers, counting those who pay on more than one motor vehicle. There is another great grouping in Grand Rapids, as there are in the other big cities of the state. In these places, at least, there should be greater facility of issuance than there has been in this and former years. We do not know the method of improvement, but we fancy it will develop itself in more room and more clerical help. It will cost more money probably, but not enough more to add appreciably to the cost of collection. The added expense will be compensated for by the greater convenience of the taxpayer, to whom waiting in a crowd has become very irksome. The state can afford to pay something toward the convenience of willing taxpayers who form ques two or three blocks long, as has been the case in Detroit many, many times this year.

And this is not in criticism of the secretary of state, who has charge of the collections, and who gathers a great deal of money for the state each year from the source which we have designated. It is simply an added counsel of perfection.

Steel, the Barometer of Business

BIG ORDERS for steel are being placed by industrial concerns, and railroads and automobile manufacturers are among the heaviest buyers. The Wall Street Journal states that the General Motors Corporation has purchased between 200,000 and 300,000 tons of steel for delivery in the first half of the year, and that the corporation is in the market for a considerable tonnage of alloyed steel. The Ford Motor Company has bought 25,000 tons of miscellaneous steel from the Donner Steel Company and placed a substantial order with the Bourne-Fuller company. The Carnegie Steel Corporation will furnish 10,000 tons of steel to the Ford company for the new forge shop to be built in Detroit, while a further 6,000 tons have been ordered by the company for its new building at St. Paul, Minn.

Among the railroads, the New York Central ordered 15,000 tons; the Union Pacific, 5,000 tons; the St. Louis Southwestern placed an order for 1,000 freight cars, while a number of street railways have placed orders aggregating about 10,000 tons of girder rails in the last fortnight.

This is quoted for the purpose of further instilling confidence in the minds of the pessimistic as to the business outlook for the future. It cannot be construed otherwise, especially as far as the automobile makers are concerned, that they expect this to be a big year of business. Neither do they think that the next year to come will be less promising. They are just going ahead with their expansion plans for that very reason, which is to be prepared for still more business.

We might also add that, judging from the new building projects announced thus far, that is, within less than three weeks since the year started, here in Detroit between $20,000,000 to $25,000,000 worth of construction jobs will have been announced this month, and reports from many other cities are indicative of a record-breaking month.

So don't be pessimistic.

Know Your State

DO YOU KNOW that the state of Michigan ranks first in the following agricultural products: Cucumbers, mint, chicory, white beans and small fruit? That it ranks second in all beans and sugar beets? That it ranks third in rye, celery, commercial apples, raspberries and silage crops—fourth in total apples, buckwheat, potatoes, green peas, strawberries and butter sold—fifth in clover seed, pears, blackberries, maple syrup and butter fat sold?

Do you realize that your state ranks first in the United States in the production of salt, chemical products, drugs, automobiles, engines, threshing machines and refrigerators? That it ranks second in the production of iron—fourth in copper—seventh in population—and tenth in education?

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The Bettcher Stamping & Mfg. Co.
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Files

Eagle Lock Company
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Michigan's 1923 Crops Valued at $242,472,000

The various crops, not including live stock or live stock products, produced in Michigan during 1923 have a total estimated value of $242,472,000, as compared with $214,899,000 in 1922, and $183,685,000 in 1921. This represents a gain of nearly 13 per cent over 1922 and 30 per cent over 1921. The valuations were computed on the basis of the December 1 price except for such fruits as were out of season. In those cases the price was that received in the marketing season. Wheat, barley, rye and beans commanded lower prices on December 1 than on the date date in 1922, all other crops showing a higher price.

Corn, oats, potatoes, hay, beans and apples brought a larger total monetary return than in 1922, and winter wheat, corn, buckwheat, potatoes and hay returned a larger value per acre than in 1922. These larger returns were mainly due to better prices rather than larger yields as only winter wheat, barley, beans and applies showed a greater production, as shown by the annual report prepared by L. Whitney Watkins, State Commissioner of Agriculture and Verne H. Church, United States Agricultural Statistician.

Nothwithstanding this apparent improvement in the general agricultural situation, Michigan farmers were compelled to pay approximately 20 per cent higher wages for their hired labor than in 1922. On October 15, the average farm price of crops and live stock was 21 per cent higher than in 1913, but the wholesale cost of all commodities was 53 per cent higher than in 1913. Therefore, the purchasing power of farm products on that date was only 75 per cent of that in 1913. This is seven per cent higher than it was at the beginning of 1923 and 11 per cent higher than the lowest point, which was touched in August and September, 1922.

The trend being upward, conditions may be said to be improving but the increase has been discouragingly slow especially to those farmers having heavy financial obligations. The farmers that secured better than average yields generally realized a little profit this year, but practically all whose yields fell beow the average received no adequate return for their abor and investment, and many suffered a direct cash loss.

For 1923, the state ranked 17th among the states in the production of all crops. Last year it held 22nd place, although it usually holds 18th place.

The detailed report for Michigan crops is in the hands of the printer and will be ready for mailing within a short time.

FORD MADE 2,090,959 CARS

During 1923 the aggregate number of Ford passenger cars and trucks made was 2,090,959, or 739,623 more than in 1922. In addition, the company produced 7,825 Lincoln cars, as compared with 5,378 and 101,898 Fordson tractors, as compared with 68,985 in 1922. All told 2,200,682 Ford products were made or practically twice as many as during the previous year. The official announcement is also made that orders received from dealers during the spring and summer for 350,000 automobiles, could not be filled, although production was steadily increased.

CHRYSLER PRICES ANNOUNCED

The Chrysler Motor Corporation, Detroit, announced the following prices for the new Chrysler Six: Touring car, $1,335; phaeton, $1,395; roadster, $1,525; sedan, $1,625; brougham, $1,795; imperial, $1,895. It is said that within a short time the daily output will be 25 cars. The John H. Thompson Company, 4446 Cass avenue, is Detroit distributor and nine city dealers have been appointed who will sell the car.

Distribution

Nineteen Twenty-Four promises to be a busy year.

Factories and Transportation facilities will be taxed to their utmost. Manufacturing schedules must be maintained.

Haven't you gone a long way toward insuring yourself against hold-ups in production when you buy where the uncertainties of transportation do not have to be counted on?

At most points within a radius of 150 miles of Detroit, our trucks deliver material at your door.

You are invited to inspect our mills, which have been greatly enlarged to promptly and properly take care of your needs.

MICHIGAN COPPER & BRASS CO.

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Buy from the hub not from the rim -

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WOODWARD AT GARFIELD

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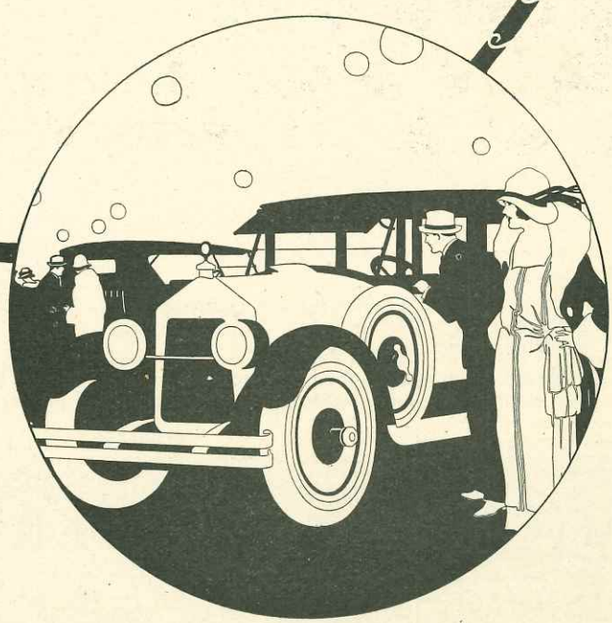
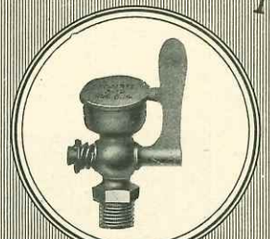
TWENTY THIRD ANNUAL EXHIBITION



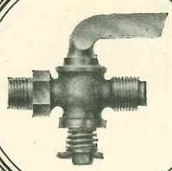
ROBERTS

BRASS ACCESSORIES

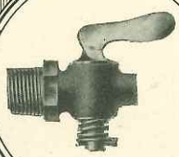
for Passenger Cars, Trucks, Tractors, Airplanes, Motorcycles *and* Motor Boats



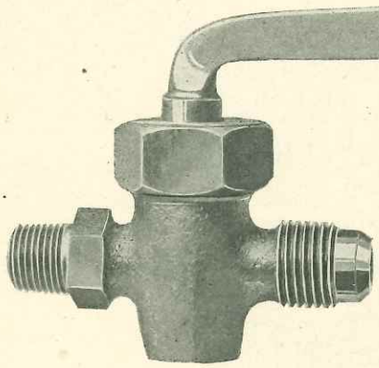
PRIMING COCKS



SHUT OFF COCKS



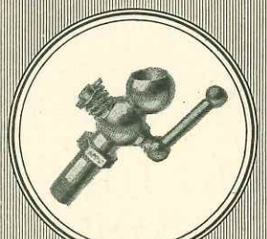
DRAIN COCKS



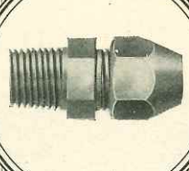
We have many customers who have found it to their advantage to specify our goods, even at slightly higher prices, thereby saving the extra cost many times over on their assembly floor.

Let us explain why.

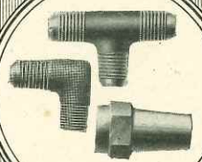
THE ROBERTS BRASS MFG. CO.
Detroit, Michigan



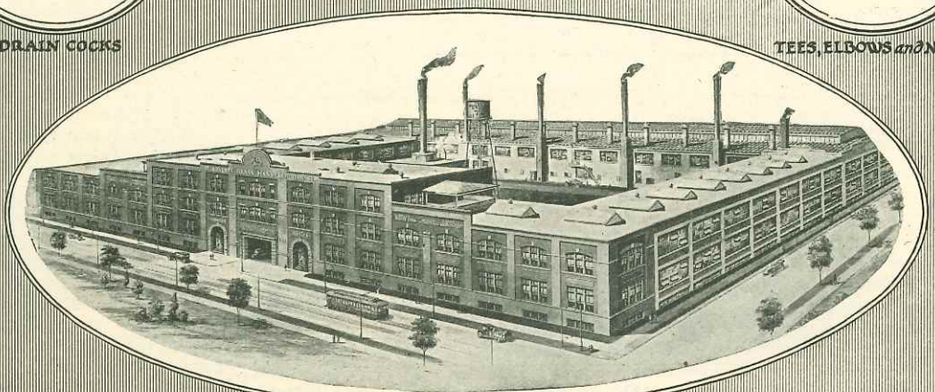
"V" TYPE PRIMING COCK



FLARED TUBE UNIONS



TEES, ELBOWS *and* NUTS



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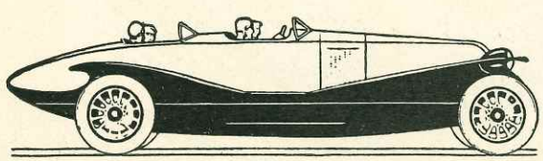


K E R S T O N

904 FREE PRESS BUILDING, DETROIT, MICHIGAN

A $30,000 Investment Grows to $7,000,000

Among the outstanding successes in the automotive industry in which a small investment has grown to a business of international importance is that of the Champion Spark Plug Company, for more than 10 years the largest makers of spark plugs in the world.

The making of Champions started as a sideline in a garage conducted by Frank F. Stranahan, now treasurer of the Champion Company, in Boston in 1906. R. A. Stranahan, now president of Champion and widely known to the entire industry as "Bob" Stranahan, was then a Harvard student.

On his graudation from the university, he entered the employ of his brother, Frank, in the humble capacity of stock boy. His ability as a salesman soon demonstrated itself, however, and he was given the New England states' territory in which to sell his brother's product.

It was "Bob" who visioned the day when practically every family would have a motor car, and who saw the possibilities in specializing on the manufacture of a vital replacement part.

He realized, also, the importance of equipment business in assuring volume which would make possible a better product at a lower price. Accordingly, he journeyed to Detroit and Toledo in an effort to interest car manufacturers in his product.

When he was finally successful in inducing Overland to select Champions, he found that he had oversold the Boston plant facilities at the same stroke. With practically all the business coming from Overland, the infant company naturally moved to Toledo, and what is now the Champion Spark Plug Company was established in a loft over a laundry in that city in 1908. Its total initial investment was $30,000. Today, this has grown to more than $7,000,000, with large plants in Toledo, Detroit and Windsor, Ont., and sales and warehouse facilities in London, Paris and other European points.

Champion also owns the only commercial deposit of sillimanite in the world. From it is mined the sillimanite used in making double-ribbed Champion cores, the finest insulator over produced by ceramic science.

Indicative of the tremendous extent to which the Champion business has expanded is the information that the company has spent more than $1,000,000 in scientific research and development work in making its product always better.

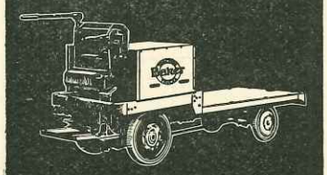
The output of Champion spark plugs in 1923 was more than 35,000,000, which is two-thirds of all the spark plugs produced in the world.

HAS AUTO TEST TRACK

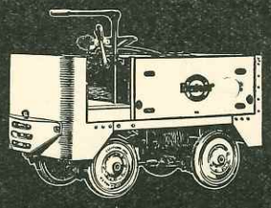
The Lincoln Motor Company, of Detroit, is one of the few factories in the world where a track has been specially constructed for the testing of cars. Just back of the main factory is a large circular track where every car is tested before it is passed, in addition to going through thousands of other tests made in building the engine and chassis.

When an engine is finished it is taken to the testing room and there it is run on racks for more than five hours. Tests are made of bearings and heating and firing in addition to vibration and balance tests. The car is then equipped with a test body and driven from the factory in the hands of Lincoln experts who have been testing cars for years. In the outdoors, where the noise of machinery cannot be heard, needed minor adjustments are noted and the car is run over the test track.

This track is constructed of hard packed cinders and a speed of 60 miles an hour may be reached without danger to the car or the driver.

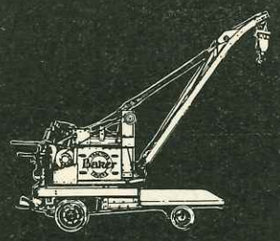


If you need an industrial tractor or truck you pay for it whether you buy it or not.

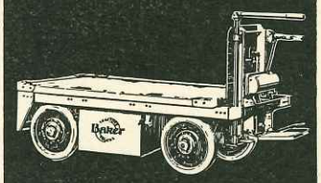


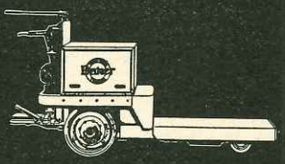
Every Baker machine cuts down overhead and releases from 5 to 15 men for more productive work.

The average Baker installation repays its purchase price in money saved during the first six months of service.

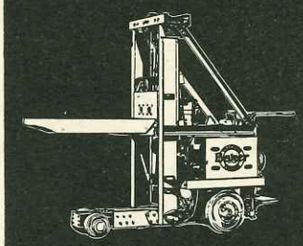


Every wearing part of any type of Baker standard tractor or truck is interchangeable with any other standard type.



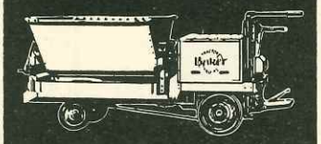


In addition to the regular line, many special trucks are built for unusual uses.



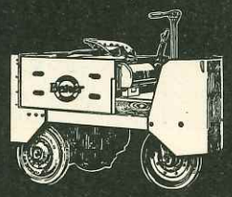
A Baker engineer will gladly study your requirements and recommend the most economical equipment for your plant.

Thirty-five sales offices throughout the country are equipped to handle your requirements promptly.



Explanatory catalog of all types of Baker industrial trucks and tractors sent promptly on request.

Wm. F. V. Neumann & Sons
Detroit, Mich.



Repeat orders are

Sixty percent of

ELECTRIC TRACTORS AND TRUCKS

TRADE-MARK REG. U. S. PAT. OFF.

Baker

firms that have demonstrated their economy by experience

speeds up production, lowers labor turnover, eliminates much of

What Are You Going to Do About Your Interplant Haulage? Let

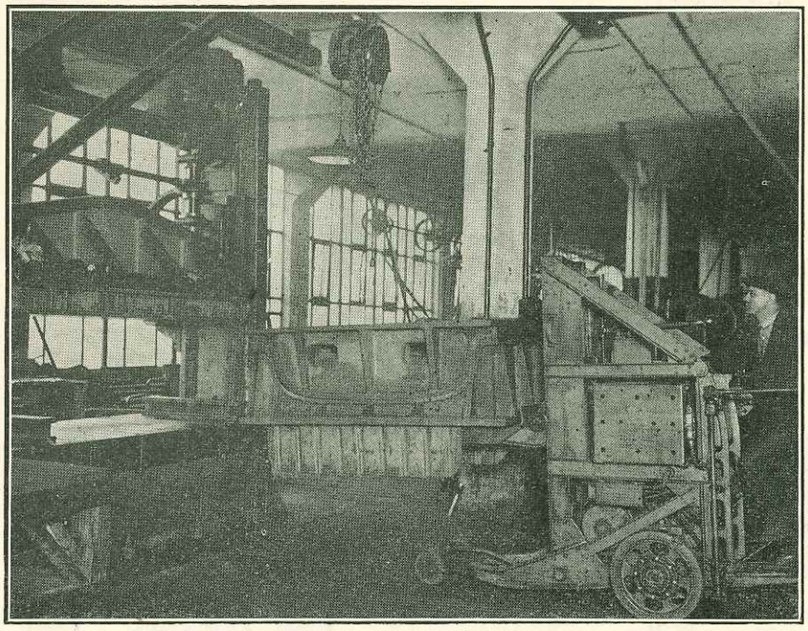
"Automatics"

Solve Your Problems

More Than Half of All Industrial Truck and Tractor Tonnage Is Moved by "Automatics"

MODELS FOR EVERY INDUSTRIAL PURPOSE

Lifting Trucks, Load-carrying Trucks, Tiering Trucks, Tractors, Crane Trucks, Hopper Trucks, Engines, etc.



Tiering-Lifting Truck Handling Dies

The Automatic Transportation Company, Inc.

1116-1118 David Whitney Bldg., DETROIT, MICH.

PIONEERS AND WORLD'S LARGEST MANUFACTURERS OF STORAGE BATTERY INDUSTRIAL TRUCKS, TRACTORS AND ENGINES

Structural Steel

Either plain or fabricated from stock on short notice, or for deferred shipment from mill deliveries. We carry in stock a large assortment of Bethlehem Sections.

WHITEHEAD & KALES CO.

Shops
River Rouge, Mich.
Detroit, Mich.

Contracting Office
2361 Beecher Ave., Detroit.
Telephone Glendale 6020.

EXCHANGE RE-ELECTS NOBLE

H. W. Noble has been re-elected president of the Detroit Stock Exchange. The other officers are: John F. O'Hara, vice-president; Lewis G. Gorton, treasurer; Frederick C. Ford, Frank K. Pelton and Mr. Gorton were re-elected members of the board for a term of three years.

CITY MOURNS A. E. F. WHITE

The death of A. E. F. White, which occurred Tuesday, January 15, marked the passing of one of Detroit's well known financiers and bankers as well as the last of the original directorate of the D. M. Ferry & Company, Detroit seed merchants. Mr. White came to this city in 1864 and during his 60 years of activity here had been connected with many of the city's more important financial and commercial institutions.

ALUMINUM CO. BANKRUPT

The Security Trust Company, Detroit, has been appointed receiver for the Advance Aluminum Die Casting Company, which had been making automobile door handles, knobs, and other aluminum products, at 3925 West Fort street.

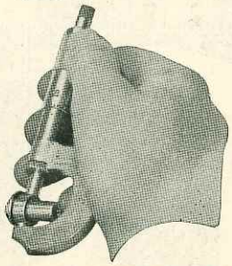
BANK RE-ELECTS OFFICERS

The Capital National Bank, Lansing, this week re-elected officers as follows: President, R. E. Olds; vice-presidents, A. C. Stebbins and R. H. Scott; vice-president and cashier, Frank E. Gorman; assistant cashiers; Albert A. Elsesser, Marshall A. Westfall, Bruce E. Anderson, and the new officer, J. Harold Sessions; trust officer, Harry D. Bennett; assistant, Allan R. Black; auditor, Miles D. Grant.

LICENSE NUMBER INCREASES

The total motor vehicle license tax paid the state in 1923 was $9,418,372 on 657,148 pleasure cars, 73,510 trucks, 4,165 motorcycles, 6,730 trailers, and 1,849 manufacturers and dealers. This is about two million dollars above that received the year previous, while about 140,000 more pleasure cars were licensed last year. In addition the secretary of state licensed 77,397 chauffeurs at $2 each; issued 562,067 titles at $1 each, and 204,045 drivers' licenses at 50 cents each. The latter revenue is all retained by the state, while that for licenses on motor vehicles one-half goes to the counties.

ACCURATE Screw Machine Products



—cost less for the reason that every part fits in its place.

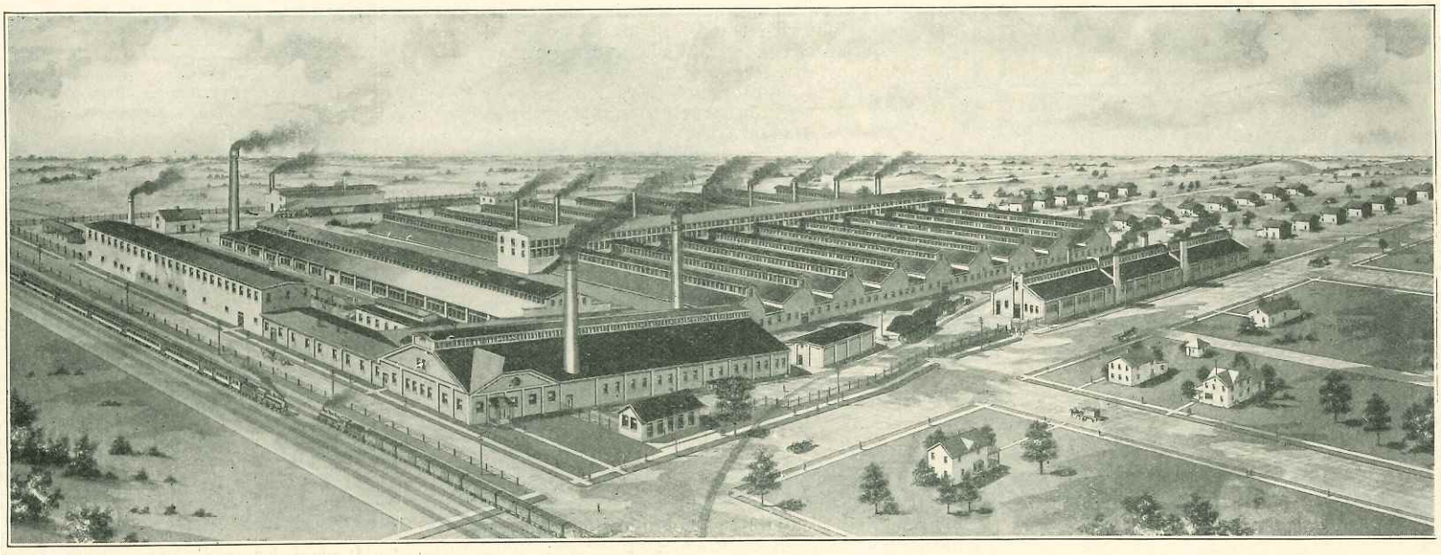
We give them a rigid commercial inspection.

BROWN-McLAREN MFG. CO.

5857 Fort St. W.
Detroit, Mich.

Circular A sent on request

1888 1924



THIRTY-SIX YEARS OF EFFORT

Service, Strength, Accuracy, Machine Ability

The attainment of these qualities in every detail has been our pride in the manufacture of

Malleable Iron Castings

for the

Automotive Industry

Such achievement is worthy your favorable consideration in deciding the source of your malleable supply.

Albion Malleable Iron Co.

Albion, Michigan

FINANCIAL

Bond Offerings and Proposals

Wood, Gundy & Company, New York and Toronto, are offering $9,700,000 city of Montreal 5 per cent bonds, dated September 1, 1923, due serially until September 1, 1963. These bonds will yield about 5.25 per cent.

The Harris Trust & Savings Bank, Chicago, and the Hibernia Securities Company, Inc., of New Orleans, have bought and are offering $945,000 of 5 per cent bonds of the city of Baton Rouge, La., at prices to yield 4.95 to 4.85 per cent.

An offering of $2,500,000 Philadelphia Rapid Transit Company real estate first mortgage 6 per cent gold bonds, is being made by Dillon, Read & Company, Detroit and Chicago. Price, 100 and interest. Bonds are dated January 1, 1924, and are due January 1, 1944.

Halsey, Stuart & Company, Detroit and Chicago, have purchased and are offering $2,000,000 Kentucky Utilities Company first mortgage lien 6½ per cent gold bonds, series D, due September 1, 1948. Price 98½ and interest, to yield over 6.62 per cent. The bonds are non-callable prior to September 1, 1933. Earnings of the company for the year ended October 31, 1923, were $1,364,637 before depreciation.

Dillon, Read & Company, Detroit and Chicago, are offering $13,000,000 Market Street Railway Company, St. Louis, Mo., first mortgage 7 per cent sinking fund gold bonds, at 100 and interest, to yield 7 per cent. The annual net income of the company was $2,435,488 last year as compared with $2,170,689 in 1922. Proceeds from the sale of these bonds will be used for discharging the entire funded debt of the company.

H. M. Byllesby & Company, Detroit and Chicago, are offering $10,500,000 Standard Gas & Electric Company convertible 6½ per cent gold debentures, maturing January 1, 1954, at 93½ and interest, to yield 7 per cent. Through the sale of these debentures, the company will retire $7,000,000 higher interest bearing obligations and will provide funds for the acquisition of additional properties.

Spitzer, Rorick & Company, Toledo, are offering $12,000 White Cloud, Mich., 6 per cent water works bonds, at a price to yield 5.12 per cent; $165,000 Miami Beach, Fla., 5.75 per cent improvement bonds, to yield 5.40 per cent; $15,000 Yazoo county, Miss., 5.25 per cent No. 3 road bonds, to yield 5.25 per cent; $48,000 Pondera county, Mont., 5.50 per cent refunding bonds, to yield 5.25 per cent; $130,000 Citrus County, Fla., 6 per cent highway bonds to yield 5.40 per cent; $11,000 Hillsboro, N. C., 6 per cent street improvement bonds, to yield 5.50 per cent.

H. M. Byllesby & Company, Detroit and Chicago, announce that the following bonds will shortly be called for payment at the following prices: Standard Gas & Electric Company, 7 per cent gold notes, due April, 1925, at 101 and accrued interest; Standard Gas & Electric Company, convertible 7 per cent bonds, due March, 1937, at 105 and accrued interest; Standard Gas & Electric Company, 7½ per cent bonds, due September, 1941, at 107½ and accrued interest.

AUTO PAPER PROVES WORTH

The First Bond and Mortgage Company, Lansing, at its annual meeting last week reported the purchase during the year of the contract paper of buyers of 5,233 automobiles in Lansing and Grand Rapids with repossessions for default totaling only 1 per cent. There was not a default in the big amount of land contract business. Officers were re-elected.

PLAN ADRIAN BANK

A new savings bank in Adrian, to be known as the Maumee Savings Bank, is being proposed. The sponsors have caused to be published a formal declaration of their intentions to apply to the state banking commissioner for a charter. It shows the sponsors to be Howand C. Wade, John S. Haggerty, Frank O. Tasche and George H. Kirchner, all of Detroit, and Fred E. Ash, of Adrian. The organizers plan to capitalize for $75,000.

All the men identified with the movement are connected with the U. S. Mortgage Bond Company of Detroit. Mr. Wade is president of that company, Mr. Haggerty is a vice-president, Mr. Tasche is auditor and Mr. Kirchner is treasurer as well as president of the First State Bank of Detroit.

CREDIT EXCHANGE ELECTS

The officers elected by the Lansing Credit Exchange last week are: President, Frank E. Baker, credit manager for the F. N. Arbaugh Company; vice-president, Albert A. Ellsesser, assistant cashier of the Capital National Bank; secretary, Cleo Baker, and treasurer, Mrs. A. E. Christopher. During the eight months of the exchange information has been given on 8,231 inquiries, and $5,000 collected.

HAS SUCCESSFUL YEAR

A very successful year during 1923 was had by the Society for Savings, Detroit, according to the secretary's report. Approximately $750,000 of home buildings were financed by first mortgage loans. The society made a growth in assets of $53,011.21. The following officers have been elected for the ensuing year: Robert McB. Grindley, president; W. B. Campbell, vice-president; E. B. Tyrrell, secretary, and R. B. Wilkinson, attorney.

BANK DEBITS DECREASE

Bank debits to individual accounts for the week ending January 9 aggregated $10,520,000,000 or $180,000,000 less than the total of $10,700,000,000 reported for the preceding week, which included by five business days.

As compared with the corresponding period in 1923, debits for the week under review show an increase of $250,000,000, or of about 2.4 per cent. Increases are shown for most of the leading centers. Aggregate debits for the 141 centers for which figures have been published weekly since January, 1919, were $9,865,784,000, as compared with $10,059,307,000 for the preceding week and $9,642,162,000, for the week ending January 10, 1923.

BANKS BOOST CAPITAL

Stockholders of the American State Savings Bank, Lansing, at the annual meeting last week approved an increase in capitalization from $500,000 to $750,000. The report showed deposits of $8,715,591.39. The Capital National Bank doubled its capital to $600,000, giving the present stockholders the privileges of purchasing additional stock on the basis of $100 a share.

All of the banks reported a prosperous condition, including the new Peoples State Bank, which has deposits of $623,946.46, more than $100,000 in cash, and above a quarter of a million invested in bonds and real estate mortgages. Its capital stock is $100,000.

PERE MARQUETTE TO SELL BONDS

The Interstate Commerce Commission has approved the application of the Pere Marquette Railroad Company to sell or pledge as collateral security $6,064,000 first mortgage bonds, 5 per cent, series A. Under the railroad company's deed of trust to the Bankers Trust Company, of New York, the road is allowed to draw 80 per cent of the $7,581,171 which has been expended for principal and betterments during the year July 1, 1922, to June 30, 1923. The railroad has not made arrangements for the sale of the bonds, but will sell them at the best price obtainable, the minimum to be 90, according to the I. C. C.

Banks and Bankers

The Union City National Bank, of Union City, has declared its customary semi-annual dividend of 6 per cent.

Total resources of the Bank of Saginaw, Saginaw, on December 31, 1923, were $23,434,780. The aggregate deposits amounted to $18,483,227. Capital stock and surplus was $1,500,000 and undivided profits $195,427.

The City National Bank, of Battle Creek, announces that its resources on December 31, 1923, were $5,559,376. Capital stock, surplus and undivided profits aggregated $640,125 and total deposits were $4,519,250.

The Highland Park State Bank, Highland Park, announces that its total resources on December 31, 1923, amounted to $25,847,993. Savings deposits aggregated $15,290,381 and commercial deposits $8,392,980. Capital, surplus and undivided profits totaled $2,050,582.

The statement of the River Rouge Savings Bank, River Rouge, shows total resources of $1,426,537 on December 31, 1923. Savings deposits totaled $802,979 and commercial deposits $396,139. Combined capital stock, surplus and undivided profits amounted to $169,629.

The Kalamazoo National Bank, Kalamazoo, announces that its resources totaled $5,597,078 on December 31, 1923. Aggregate deposits amounted to $4,795,452. Capital stock was $500,000; surplus and profits, $203,101.

At a meeting of the stockholders of the Halfway State Bank, Halfway, near Mt. Clemens, it was decided to increase the capital stock from $25,000 to $50,000. Present shareholders will be offered the additional stock at $120 a share.

A national bank is being promoted in Grand Ledge by Francis Hoag and other well known citizens. In a statement Mr. Hoag said: "The National Bank of Grand Ledge is now an assured thing, being backed by prominent business men and influential farmers of this community. The new bank will open its doors in the Burtch block, early in the new year."

On January 3, 1924, the Peoples State Bank, of Holland, passed the $2,000,000 mark of resources. At the close of business on that day total resources aggregated $2,016,167. The bank, which was organized 18 years ago, has a capital of $50,000. Last July surplus attained $50,000. Of the $2,016,167 resources, $1,012,021 were savings deposits and $882,400 were commercial deposits. The growth of this institution reflects the healthy condition of business in general in and about Holland, for the other two local banks have also steadily increased their resources.

Figures released by officials of Owosso's three banks show a gain of slightly more than 18 per cent in savings deposits for 1923 over the total for 1922. The Citizens' Bank has total resources of $1,642,593.68, and deposits on December 31, 1923, of $1,507,731.96. The Owosso Savings Bank has resources totalling $2,791,007.14. The resources of the State Savings Bank total $1,595,031.13, and the deposits are $1,442,558.20. The amount deposited in the savings departments of the three Owosso banks was $343,604.87, a gain of $56,402.92 over the 1922 savings.

MUSKEGON DEPOSITS GAIN

Greater Muskegon banks maintained their steady growth during 1923, a study of the annual reports discloses. The banks, five in number, and of which four are in Muskegon and the fifth in the Heights, had total resources on December 31, 1923, of $15,944,971.69, against $14,595,167. This was an increase of $359,804.69, or almost 2½ per cent.

Deposits at the end of the year just passed totaled $12,653,614.21, or an increase of $1,026,165 during the year. This represents an increase of almost 9 per cent.

All directors of the five banks, the National Lumberman's, the Union National, the Hackley National, the Muskegon Savings and the First State of Muskegon Heights, were re-elected at the annual stockholders meetings.

You Can Show a Profit for 1924— in CASH!

It's not what you *earn*—it's what you *save* that counts. And on our new plan for "buying" $1,000 on easy weekly payments you can *guarantee* yourself a cash profit for 1924.

Start the new year right. Here is your opportunity to insure a profit on your work for this year through our

"Buy $1,000" Plan

On Easy Payments—$4.52 per Week

The tremendous popularity of this new plan warrants your earnest consideration of its value as applied to yourself. The following are but a few of its many advantages—

1—You will save from 100 to 300% more money on this plan than you will through a regular savings account.

2—The weekly payments are so small that they are not a burden. Payments may be made every two weeks if more convenient.

3—Partial withdrawals are not permitted. However, the entire amount deposited may be withdrawn at any time and you will receive the same interest that your deposits would have earned in a regular savings account, viz., 3% compounded semi-annually.

4—On this plan you can arrange to have any amount of money available for a certain future date—from $500 to $100,000. This plan takes all the guess work out of saving—you know just how much to put aside, regularly, to receive any desired amount upon a certain date.

5. It is the ideal way to provide a means for putting your boy through college—accumulating money for investment—a first payment on a home—to pay off a mortgage—etc. And to every young man this plan opens a clear route to that "first thousand dollars".

Weekly Payments:

$ 500 on the four year plan - - -	$ 2.26 per week
1,000 on the four year plan - - -	4.52 per week
1,000 on the three year plan - - -	6.13 per week
1,000 on the two year plan - - -	9.33 per week
1,000 on the one year plan - - -	18.95 per week

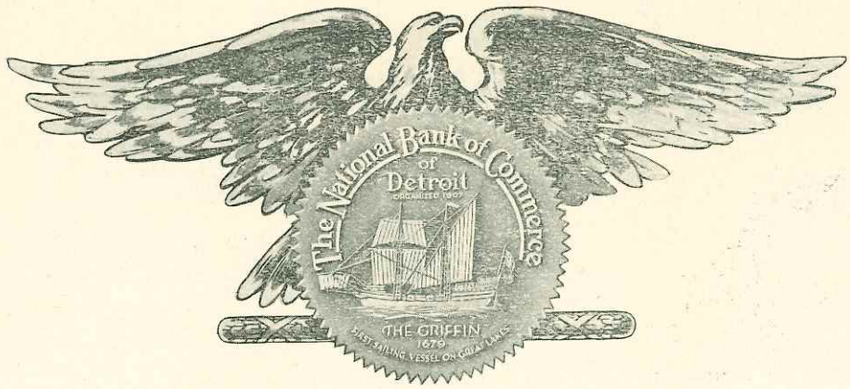
DIME SAVINGS BANK

Fort & Griswold Streets, Detroit, Mich.

EIGHTEEN BRANCHES:

6501 WOODWARD at MILWAUKEE
6465 JEFFERSON at BEAUFAIT
1357 GRATIOT at RUSSELL
5612 GRAND RIVER at LAWTON
4701 WOODWARD at WILLIS
1400 MICHIGAN at EIGHTH
6503 FOURTEENTH at FERRY PARK
104 WITHERELL at BROADWAY
8841 OAKLAND at HOLBROOK
9143 GRAND RIVER at HIGHFIELD
7131 HARPER at FRONTENAC
MT. ELLIOTT at DAVISON
1900 CHENE at SHERMAN
6257 DIX at ARTILLERY
6173 MICHIGAN at MILITARY
3941 HASTINGS at ALEXANDRINE
8601 TWELFTH at PINGREE
2900 ST. JEAN at CHARLEVOIX

Open Every Monday Evening from 6 to 8 O'clock



Customers of the National Bank of Commerce enjoy and appreciate a sense of advantage peculiar to themselves.

The care exercised by this institution in the selection of its clientele reflects a certain prestige upon each individual customer. The high regard in which this bank is held is evidenced by the added courtesies everywhere accorded its customers.

THE
National Bank of Commerce
OF DETROIT

Downtown Bank
144 FORT STREET, W.

Uptown Bank
GENERAL MOTORS BUILDING

Safety Deposit Boxes - - 3% on Savings Accounts

Complete record of balances and signatures is kept at both banks, and customers' checks can be cashed at either without delay

Capital and Surplus $3,600,000 Resources $45,000,000

DIRECTORS

WILLIAM P. HAMILTON, *President Clinton Woolen Mfg. Co.*
CHARLES H. HODGES, *President Detroit Lubricator Co.*
JAMES INGLIS, *Pres. American Blower Co.*
RICHARD P. JOY, *President.*
SAMUEL R. KINGSTON, *Vice Pres. and Cashier*
D. B. LEE, *Pres. Motor Products Co.*
ALVAN MACAULEY, *President Packard Motor Car Co.*
JOSEPH MACK, *Pres. Jos. Mack Printing House, Inc.*
ED. M. MANCOURT, *Vice Pres. Consolidation Coal Co.*
CHAS. S. MOTT, *Vice Pres. General Motors Corp.*
EDWIN H. NELSON, *Pres. Nelson, Baker & Co.*
CHARLES M. ROEHM, *Pres. Roehm & Davison*
JOHN R. RUSSEL, *Vice Pres. Russel Wheel & Foundry Co.*
MURRAY W. SALES, *Pres. Murray W. Sales & Co.*
HENRY H. SANGER, *Vice President.*
CHARLES R. TALBOT, *Vice President.*
CHARLES B. WARREN, *Counsel for the Bank*

OAKLAND DEALERS TO DINE

The annual banquet of the Oakland dealers of Michigan will be held in the General Motors building, Wednesday evening, January 23. About 200 Oakland dealers, salesmen and dealers' bankers are expected to be present. A. E. Colgrove, manager of the Detroit Sales & Service, is in charge of arrangements for the banquet, assisted by C. B. Dorland, branch manager, Pontiac; C. L. Voss, branch manager, Grand Rapides, and J. J. Tompkins, distributor, Saginaw.

The list of banquet speakers includes George H. Hannum, president and general manager of the Oakland Motor Car Company; G. J. Nephler, general sales manager; B. C. Koether, who heads the advisory staff of the General Motors Corporation on sales, service and advertising; R. A. Armstrong, service manager of the Oakland Motor Car Company, and G. E. Dictrekson, Detroit branch manager, General Motors Acceptance Corporation; C. B. Dorland, branch manager, Pontiac, will act as toastmaster.

REORGANIZE SALES DEPT.

The Detroit Graphite Company, Detroit, has reorganized its general sales department at the Detroit headquarters and announces that all sales operations are now under the supervision of vice-president P. L. Maury.

AWARD BUHL CONTRACT

Arthur H. Buhl, president of the Buhl Land Company, has announced through Donald S. Kiskadden, manager, the letting of the general contract for the erection of the new 26-story Buhl building to be located on the southwest corner of Congress and Griswold streets. The contract was awarded to the firm of Davis & McGonigle, successors to the Frank H. Davis Company, Detroit.

Work of razing the present Buhl block started Thursday of this week. The new building will be the tallest office structure in Detroit and will be ready for occupancy May 1, 1925. The building will be erected in the form of a Maltese cross, giving all offices outside locations. No reservation has been made for banking institutions on the first floor which has allowed plenty of room for a large and attractive lobby. Construction material will be uniform throughout and will be the finest obtainable, including marble paneled walls.

OFFERS $3,000,000 BONDS

The State Highway Department, Lansing, announces that bids will be received January 30, for $3,000,000 of highway bonds, some bearing 4 per cent, others 4¼ and 4½ per cent interest.

GENERAL MOTORS BLDG.
Grand Boulevard, between Cass Avenue and Second Boulevard
THE ACTUAL CENTER OF DETROIT
AVAILABLE TO THE PUBLIC
OFFICE SPACE
AUDITORIUM
EXPOSITION HALL
Permanent exhibit room on ground floor
High class cafeteria on 15th floor

The next time you are in Grand Rapids stay at the
HOTEL BROWNING
150 Rooms with Duplex Bath, $2.00
With Private Bath, $2.50 and $3.00
Three short blocks from the Union Station
HOTEL BROWNING, GRAND RAPIDS, MICH.
Most Modern Construction

Farsightedness

Some business concerns which started very small have grown into large and powerful institutions.

Other concerns which were, are no more.

No one knows what fate or fortune awaits around the corner. Wise men tie up with a financial institution capable of meeting every requirement.

Many learn too late that much of the success of others is due to adequate banking connections.

You are invited to become personally acquainted with the officers of this organization representing more than $119,000,000 in resources.

FIRST NATIONAL BANK

Central Savings Bank & First National Co. of Detroit

Woodward Avenue at Cadillac Square

RESOURCES OVER $18,000,000

OFFICERS

WILLIAM ALDEN SMITH, Chairman of Board
CHARLES W. GARFIELD, Chairman of Ex. Com.
GILBERT L. DAANE, President
ARTHUR M. GODWIN, Vice-President
EARLE D. ALBERTSON, Vice-Pres. and Cashier
EARL C. JOHNSON, Vice-President
ORRIN B. DAVENPORT, Assistant Cashier
HARRY J. PROCTOR, Assistant Cashier
H. FRED OLTMAN, Assistant Cashier

DIRECTORS

NOYES L. AVERY
JOSEPH H. BREWER
GILBERT L. DAANE
CHARLES W. GARFIELD
WILLIAM H. GILBERT
ARTHUR M. GODWIN
CHAS. M. HEALD
JOHN HEKMAN
J. HAMPTON HOULT
CHAS. J. KINDEL
FRANK E. LEONARD
JOHN B. MARTIN
GEO. A. RUMSEY
WILLIAM ALDEN SMITH
TOM THOITS
A. H. VANDERBERG
GEO. G. WHITWORTH
FRED A. WURZBURG

54.000 SATISFIED CUSTOMERS

The GRAND RAPIDS SAVINGS BANK

"The Bank Where You Feel at Home"

WESTERN MICHIGAN'S LARGEST BANKING INSTITUTION

DETROIT MORTGAGE CORPORATION

Offers and Sells

FIRST MORTGAGE BONDS

That Have These Merits—

1—The Security behind them is twice the amount of the Mortgage Loan.

2—The Security is New Buildings, which have their best earning power during the period of the Mortgage.

3—Their Earning Power is calculated on Conservative Rental Incomes.

4—Furnishings are no part of Detroit Mortgage Corporation Security for Real Estate Bonds—Real Estate Only.

PRINCIPAL SAFE—
INCOME PROMPT

DETROIT MORTGAGE CORPORATION

138 Cadillac Square
DETROIT, MICH.

SURETY BONDS 1896 SAFETY AND SERVICE

Fidelity & Surety Bonds of every character and description

Fidelity · Contract
Depository · Court
Public Official
License and Permit

Prompt and Efficient Service

Detroit Fidelity and Surety Company
Detroit Mich.

MATTHEW FINN

Specialist in Michigan Municipal Bonds

We are in the market at all times to buy, as well as sell.

INQUIRIES SOLICITED

612 Penobscot Building, Detroit, Mich.

MUNICIPAL BONDS

Free From Federal Income Taxes

Yielding 4½% to 6% Per Annum.

We will register with County Treasurer any bonds purchased and pay ½% fee, making them FREE OF ALL STATE TAXES

The Hanchett Bond Co.

INCORPORATED 1910

Municipal Bonds.
CHICAGO.

Dime Bank Bldg., Detroit
W. H. Dunham, Representative

Advertising School Has Expert Lecture Staff

Bruce Barton, famous magazine writer and president of Barton, Durstine, Osborn, Inc., one of the largest advertising agencies in the country delivered the opening address of the Adcraft Advertising School in the General Motors building, January 17. Mr. Barton's subjact was "Analysis," covering analysis of market, selling plan and selling theme. He has planned advertising campaigns for such companies as the General Motors, the General Electric and the American Radiator Company.

This course will cover the essentials of advertising practice in a practical manner. There will be two classes a week for 10 weeks on Tuesday and Thursday evenings from 7 to 9 o'clock. The school is not conducted for profit therefore the tuition is set at a low figure, $12.50.

The Thursday evening sessions will be Lecture Sessions and on the following Tuesday, Laboratory Sessions will be held on the subjects discussed on the previous Thursdays.

Among those who comprise the Adcraft lecture staff and their subjects are the following: J. Fred Woodruff, general manager, Campbell-Ewald Company, "Advertising Copy;" Joseph C. Faust, vice-president, Advertisers Bureau, "Advertising Layout;" George K. Hebb, Evans-Winter-Hebb, Inc., "Typography;" Verne W. Tucker, president, Apel-Tucker Studios, "Advertising Illustrations;" Frank G. Eastman, advisory staff, General Motors Corporation, "Engravings;' Joseph Meadon, president, Franklin Press, "Printing and Printing Methods;" Robert E. Ramsey, vice-president, James F. Newcomb Company, New York, "Direct Advertising;" Joseph B. Mills, publicity director, J. L. Hudson Company, "Retail Advertising;" Frederick Dickinson, advertising manager, Hupp Motor Car Corporation, "National Advertising;" Gordon K. MacEdward, sales manager, Walker & Company, "Outdoor Advertising;" Norman I. Taylor, account executive, Brooke, Smith & French, Inc., "Advertising Displays."

The faculty, under whose direction the school will be conducted, are: Richard C. Fowler, vice-president, Campbell-Trump Company; Verne E. Burnett, secretary, General Motors Advertising Committee, and Cliff Knoble, Brooke, Smith & French.

HUPP RETIRES STOCK

The recent retirement of preferred stock of the Hupp Motor Car Company, authorized by the stockholders of the corporation, amounted to 4,000 shares. Redemption of 9,079 shares at $120 and accrued dividends was also authorized.

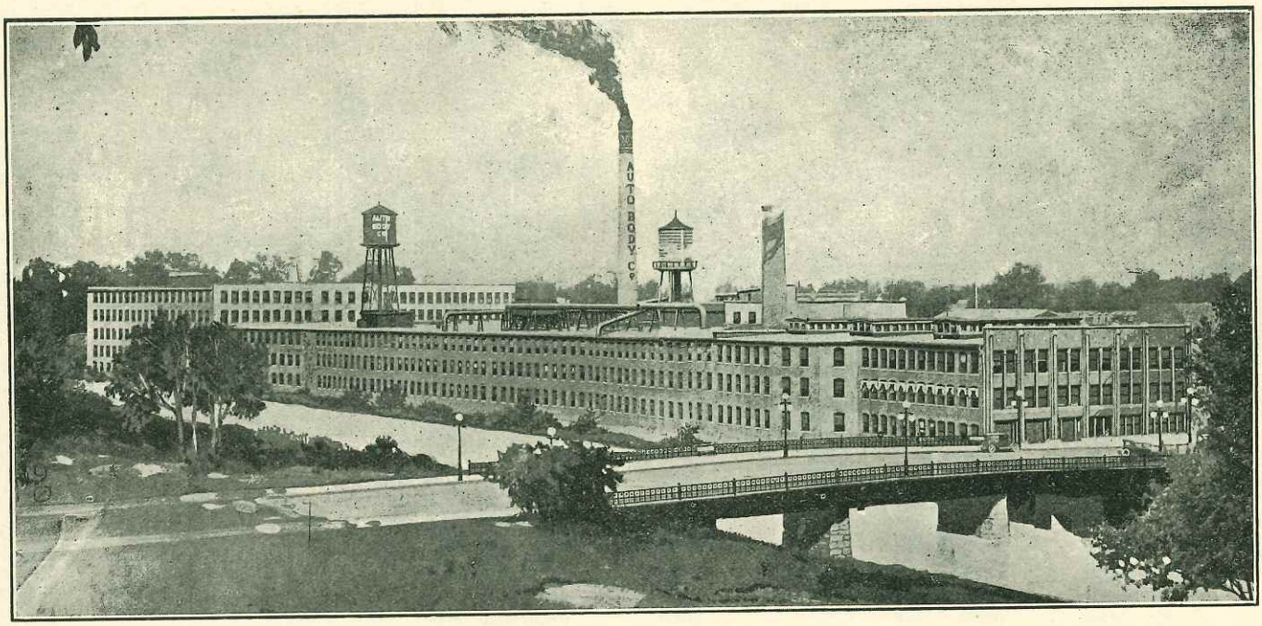
EXCHANGE PAYS CASH

Approximately $10,000 in cash dividends or refund of commissions will be made Michigan farmers who have shipped through the Michi-Live Stock Exchange as their share of the $24,234 dividend just declared by the Producers' Co-operative Commission Association at Buffalo, about a third of the business coming from Michigan.

MICHIGAN MORTGAGE ELECTS

Stockholders of the Michigan Mortgage Investment Corporation re-elected directors at the annual meeting last week. They are Glen R. Munshaw, William R. Town, Bert J. Baker, Vern J. Padgett, all of Lansing; F. E. Tillotson, Detroit; Frank S. Coleman, Grand Rapids, and Harry J. Smith, Jackson.

An adjustment has been made on the insurance carried on the burned Oakland building, the corporation receiving $115,000 on the main building and $11,000 on the annex. The total rental insurance from both was $25,000.



The Auto Body Company

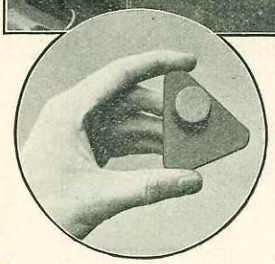
Lansing, Michigan

ESTABLISHED 1901

Manufacturers of

Open and Enclosed Automobile Bodies

Making the mold for a set of fender stamping dies which weigh many tons when completed.



One of thousands of castings weighing but a few ounces each, which we turn out every day.

Ounces or Tons

No matter what the size of the casting you need—from the smallest gear or broken part to the largest stamping die or machine base—we are equipped to turn it out for you quickly, economically and with the utmost precision. The same care, the same expert workmanship, and the same unerring inspection are given the single small casting and the huge sets of dies. Small emergency jobs turned out while your messenger waits—twenty-four hour delivery service to all parts of the city.

DETROIT GRAY IRON FOUNDRY COMPANY

Foot of Iron St. Detroit, Mich.

Detroit's Largest Jobbing Foundry

THE *Belle Isle* BEARCAT

Fast Dry Comfortable Reliable Safe

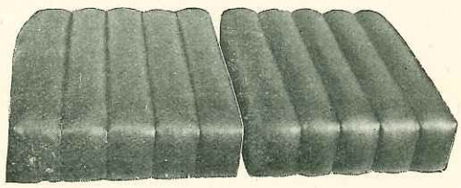
These qualities make the Bearcat paramount in its field. Each season, new equipment and additional refinements have been added so that the latest Bearcat represents the last word in runabouts.

See the Belle Isle Bearcat at the Detroit Automobile Show

Belle Isle Boat & Engine Co.
Detroit, Mich.

Kant Sag UPHOLSTERY Kant Sag UPHOLSTERY

DON'T FAIL TO SEE THIS SEAT CUSHION.



IT'S BUILT UPON A SCIENTIFIC PRINCIPLE

DEMONSTRATED DURING THE SHOW THIS SEAT ASSEMBLED WITHOUT TACKS—TOOLS—OR SKILL

Eliminates Sagging Side of Cushion

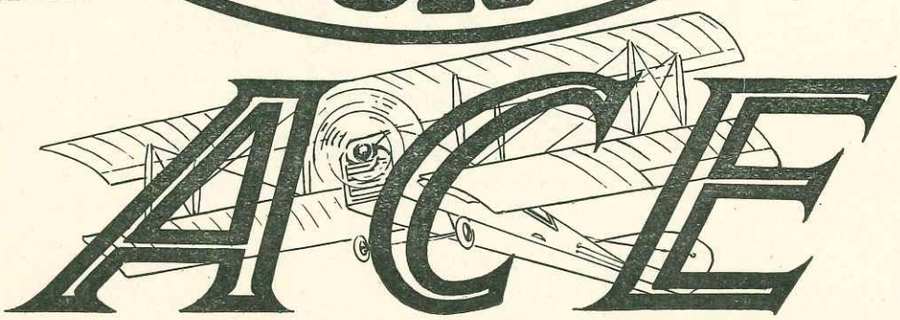
CAR MANUFACTURERS PARTICULARLY INVITED TO VIEW OUR EXHIBIT DURING THE DETROIT SHOW

UPHOLSTERY PRODUCTS CO.
49 SELDEN AVE.
DETROIT

Kant Sag UPHOLSTERY Kant Sag UPHOLSTERY

QUALITY
PETRO
MOTOR OIL

LOOK FOR
THIS SIGN
AT YOUR
SERVICE STATION



OF LUBRICANTS

DETROIT SOLUBLE OIL COMPANY
DETROIT, MICHIGAN CEDAR 2166

You See

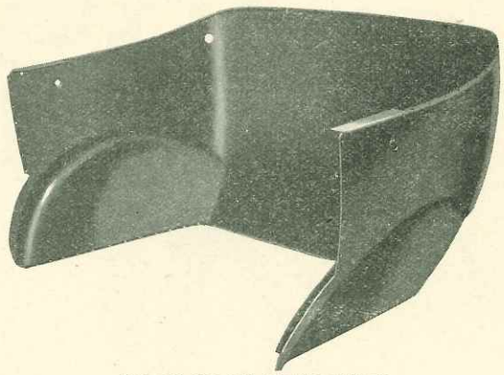
Every Day

HAYES MFG. CO. HAYES DETROIT. MICH.

Every-where

Sheet Metal Products

This is Hayes Manufacturing Company's twentieth year as suppliers of sheet metal parts to many of the leaders in the automobile industry. Automobile Body Stampings, Fenders, and Hoods built by Hayes are known for their quality and quick assembly; they are produced in a plant built and equipped for the highly specialized production of Standard and Specialized Sheet Metal Stampings.



REAR SEAT STAMPING

Stamped out of one piece of metal with wheel housings included. Produced on Hayes Designed and Hayes Built Dies.

HAYES MANUFACTURING CO.

DETROIT, MICHIGAN

Durant's Sensation

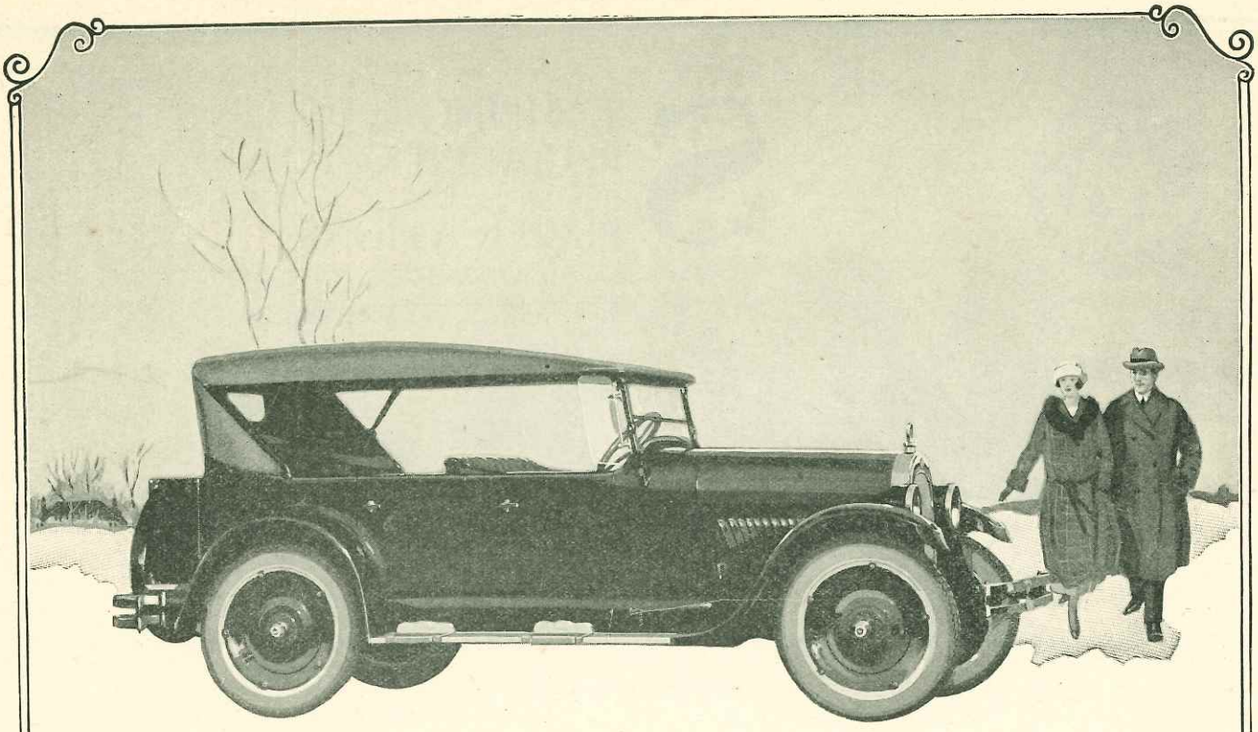
THE FLINT SIX

70 horse power motor—seven bearing crank-Shaft—120 inch wheel base. Permanent top full lined. Exceptional in performance and riding comfort.

On display at Show Rooms, West Grand Blvd. at Hamilton, also Auto Show.

DETROIT FLINT COMPANY

STATE DISTRIBUTORS



Beautiful *and* Good

The sweeping acceptance of the Oldsmobile Six Sport Touring can be explained in one sentence—we're giving people high quality, physical beauty, six cylinders, real comfort for five, complete equipment, and low price.

This car would have to be priced at more than $1000 but for this fact—it is the joint product of Oldsmobile and General motors. Oldsmobile's immense plants and quarter-century of experience *plus* General Motors' great purchasing power, big experimental laboratories, and its staff of experts establish a manufacturing advantage that is reflected in the price of the Sport Touring. No car of like quality has ever sold at a price so low.

Description: *Body and Tuarc Steel Wheels in weathered bronze green, gold and black striping. Drab duck tailored top, with boot to match. Brown Spanish upholstery. Nickeled radiator, Boyce Motometer, spot light on front fender apron. Nickeled bumpers front and rear. Drum type legal head lights, windshield wings, windshield cleaner, rear view mirror, four special monogramed Oldsmobile step plates, four aluminum guard rails at rear, smart black enamel trunk mounted on rigid rack.*

OLDS MOTOR WORKS, LANSING, MICHIGAN
Olds Motor Works of Canada, Ltd., Oshawa, Ont.

a SIX Sport Touring at $885

Touring Car	*$ 750*
Roadster -	*750*
Cab - - -	*955*
Coupe - -	*1035*
Sedan - -	*1095*

The G. M. A. C. extended payment plan makes buying easy. All prices f. o. b. Lansing. Tax and spare tire extra.

OLDSMOBILE-SIX

PRODUCT OF GENERAL MOTORS

Genuine Oldsmobile parts can be purchased from any Oldsmobile dealer in any part of the United States, at a standard price established by the factory, without the addition of any war tax, handling, or transportation charges. Every Oldsmobile dealer has a master parts price list issued by us, which is always open for owners' inspection.

STAMPING SPECIALISTS TO YOUR SPECIFICATIONS

When you want a job in heavy or light metal work—

When you have an idea down on paper, and want it finished—

Fenders—Hoods
Running-Board Shields
Running Boards
Body Stampings
Gas Tanks
For all makes of Cars

Send us your blue prints and specifications.

We'll quote you the *right* price—and give you the *right* job.

We Specialize to the Trade

MOTORS METAL MANUFACTURING CO.

5936 MILFORD STREET, DETROIT, MICHIGAN
TELEPHONE GARFIELD 5340

LEARN A GOOD TRADE
IN YOUR SPARE TIME
WE TEACH YOU
AT ACTUAL COST
All Branches of
AUTO BODY TRIMMING TRADE—
BACKHANGING—OPEN AND CLOSED
BODY TRIMMING, ETC.

There is a great demand for men who know this trade

OUR MODERN EQUIPPED SCHOOL
IS OPEN FOR YOUR INSPECTION

VISITORS INVITED

WE WILL TRAIN ONLY A LIMITED
NUMBER OF MEN

if you want a trade, here's your chance

OPEN DAILY UNTIL 9 P. M.

AUTO MANUFACTURERS BODY TRIMMING SCHOOL
49 SELDEN AVE. DETROIT

Auto Electric and Service Corporation
93 Selden Ave.—Glendale 4121-4122
Manufacturers' Representatives

STARTING, LIGHTING AND IGNITION SYSTEMS

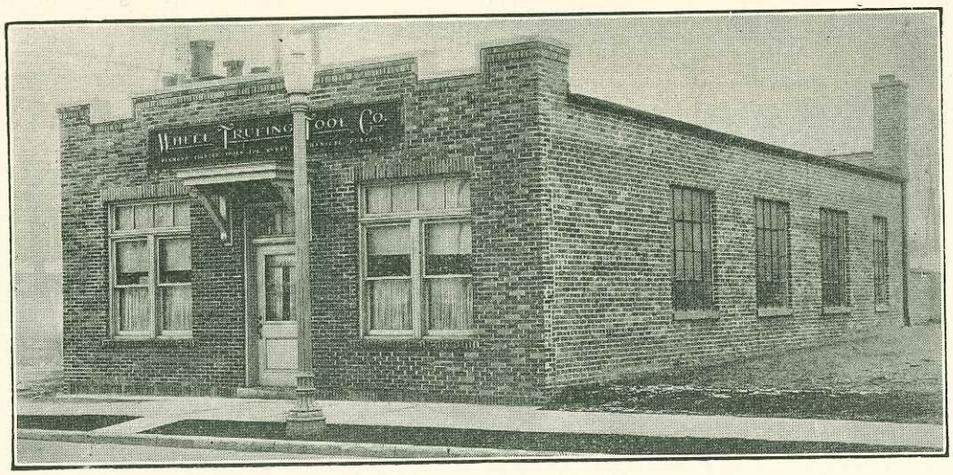
OFFICIALLY REPRESENTING

Atwater Kent	Simms Magnetos
Bijur	Splitdorf
Connecticut	Eclipse (Bendix)
Dyneto	Norma Bearings
Leece-Neville	Delco-Klaxon-Remy
Westinghouse	E. A. Laboratories
Briggs and Stratton	Sparton Products
Electric Auto-Lite	Tillotson Carburetors
Berling Magnetos	Fafnir Bearings
K. W. Magnetos	Zenith Carburetors

State Distributors Vesta Batteries

Genuine Parts

OFFICIAL FACTORY SERVICE



A New Factory Dedicated to the Diamond of Industry

The place where the crude diamond is incorporated into the tool best adapted for its use, to become the scientific tool of Industry.

Let Us Solve Your Diamond Problems.

Is Yours Here?

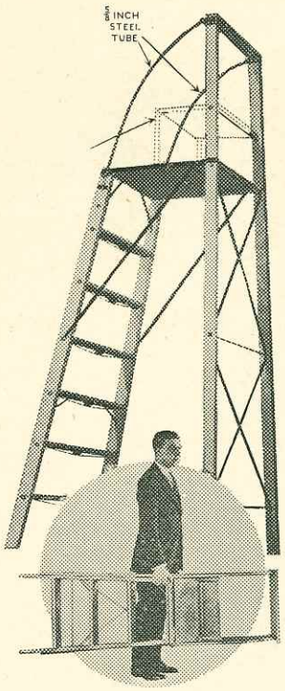
Diamond Pointed Tool for Wheel Trueing
Diamond Saw Teeth
Diamond Pointed Turning Tools
Diamond Wire Drawing Dies
Diamond Glass Cutters
Diamond Drills for Drilling Glass, Rock, etc.

-BORTZ- DIAMONDS -CARBON-

WHEEL TRUEING TOOL CO.

IMPORTERS OF BORTZ & CARBON DIAMONDS
MANUFACTURERS OF
DIAMOND TOOLS FOR EVERY MECHANICAL PURPOSE
2130 PENOBSCOT BUILDING
DETROIT

EASTER OFFICE
527 Fifth Avenue, New York City
WESTERN OFFICE
1105 Great Northern Bldg.,
20 Jackson Blvd. W., Chicago, Ill.
CLEVELAND OFFICE
343 Engineers' Building
CANADIAN BRANCHES
Walkerville, Ont., St. Catherines, Ont.
CABLE ADDRESS
"Wheeltruco" Detroit



For

Safety, Convenience and Time Saving for all Industrial Purposes.

Built for Permanence.

Endorsed by Safety Engineers and approved by the Underwriters' Laboratories

Dayton Safety Ladders

EDWIN F. CLEMETT
Distributor
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Phone Cad. 1294

McCord Manufacturing Co., Inc.
2597 East Grand Boulevard
Detroit, Michigan
EMpire 4960

McNamara Sign Co.
531 East Layfayette
Phone Main 2775 Detroit, Mich.

COMMERCIAL AND PORTRAIT
D. D. Shulman PHOTOGRAPHER
STUDIO BUILDING
4838 Woodward Ave.
GLENDALE 10 NEAR WARREN

WANTED

Good second-hand manganese screw door safe; also vault doors. Please state full particulars and prices. Address Box S, care M. M. & F. R., 904 Free Press Bldg., Detroit.

WILLIAM B. FROTHINGHAM
OPTOMETRIST
OFFICE HOURS: 9 a. m. to 12 m. 1 p. m. to 5 p. m.
FINE ARTS BLDG. 58 W. ADAMS AVE. TEL. MAIN 3620
Other Hours by Appointment

Hayes Wheel Celebrates Fifteenth Anniversary

A recent statement issued by the Hayes Wheel Company, of Jackson, Mich., makes public the fact that this concern is now celebrating its fifteenth anniversary. In 1908, with a small plant and a capital of $50,000 this company was organized by C. B. Hayes. Today, just 15 years since its founding, it has grown into an institution with tangible assets aggregating over $10,000,000, with eight great producing plants equipping approximately 50 per cent of all the cars in America with Hayes wheels.

The gross volume of Hayes wheels and rims for the first ten months of 1923 was in excess of $22,000,000. Heretofore the output of the product of the company has been around 6,000 sets per day. Now it is being increased to a minimum of 7,500. It is further announced that production is now timed on the basis of an output totaling $30,000,000 per year. The company feels that it is in a better financial condition today than it has ever been in its history. The success of the company is attributed to three things—a quality product, quantity production, and certain exclusive advantages possessed by Hayes wheels and rims. Among the automotive companies which now include Hayes wheels as standard equipment appear the names of the Ford Motor Company, General Motors Corporation, Nash Motors Company, Willys-Overland, Inc., Durant Motors and Gardner Motors.

Eight producing plants are located in various centers as follows: East and west end plants, Jackson, Mich.; Albion, Flint, Anderson, Ind.; Nashville, Tenn.; Chatham, Ont., and St. Johns, Mich.

The total output during the 15 years in business has amounted to 34,912,257 wheels, or 8,728,064 complete sets. Comparing this total output with the 19,356,447 passenger cars and trucks produced during a like period, shows that 45 per cent of all cars and trucks during the entire 15 years of manufacture have been Hayes wheel equipped.

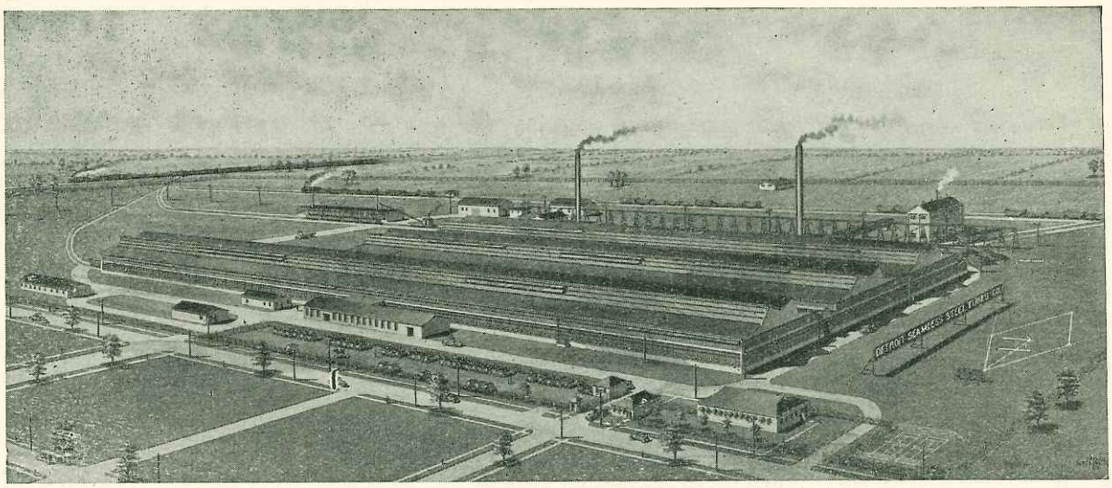
Sensing the trend toward standardization, Hayes is offering to the public a complete line of standardized wheels in wood, wire and disc. The interchangeability of the standardized Hayes wheels permits motorists to quickly switch from wood to wire or disc as inclination dictates. Another feature to which a certain portion of the success of the product is ascribed is the attached-lug-rim. In place of the usual practice of concentrating the strain at but one point in the circumference of the wheel each lug is attached to the rim and becomes a driving member, which distributes the stress equally over the entire circumference of the wheel. When the Hayes attached-lug-rim is drawn in place it is in perfect alignment. It stays right and tight, and eliminates rim squeaks and rims running out-of-true.

By introducing a line of standardized wheels, Hayes has swept aside precedent and met the tendency toward standardization more than half way. The result has been that the demand on the part of the public has reflected itself in volume which during the past 15 years has made this organization the largest of its kind in the world.

TRUCK SALES GAIN 75%

An increase of approximately 75 per cent in the sale of one-ton trucks in 1923 over the previous year reported by the Ford Motor Company, indicates the trend of sentiment and experience in the transportation field. Coming as it does from the manufacturer of more than 60 per cent of the trucks produced in the United States during the year, this statement covers the widest possible field of truck operation.

DETROIT



THE ONLY SEAMLESS STEEL TUBES PLANT IN THE HEART OF THE AUTOMOTIVE INDUSTRY

Cold Drawn and Hot Rolled
Seamless Steel Tubes

A PLANT AND A SERVICE

Automotive engineers have found Detroit Seamless Steel Tubing ideal for heavy duty services. Parts like drive shafts, frame cross members, steering columns, shaft housings, axle housings and un-numbered other parts are now being made of Detroit Tubes. For one thing they are lighter; more important, they are stronger—a characteristic better described by the word "tougher;" and of large importance in your estimation — they are easy to machine, require little finishing and eliminate many rejections by the inspectors.

If you would like advice, help or cooperation of any sort in the adaptation of seamless tubes to your product, Detroit engineers are ready to work with you. Their experience has proved helpful to many and is available to you in its entirety.

Sizes up to 5½" O. D.

Straight Tubing **Formed Tubing**

DETROIT
SEAMLESS STEEL TUBES CO.
DETROIT, MICHIGAN

Established 1900

District Offices: 332 South Michigan Ave., Chicago; Guardian Building, Cleveland; 342 Madison Ave., New York; Front & Freeman Sts., Cincinnati, O.

Allegheny

Steel and Iron Products

High Grade Electrical SHEETS for Transformers, Dynamos and Motors.

Special Pickled and Cold Rolled Grades for Automobile Bodies. Metallic Furniture and all Forms of Deep Stampings.

Lap Welded Steel Boiler Tubes—2" to 6" O.D.

Heavy Steel Castings.

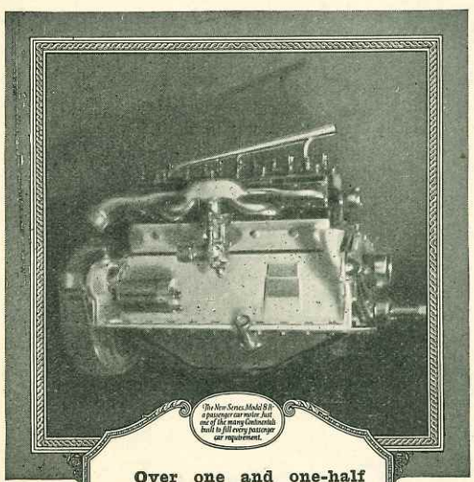
Hot and Cold Pressed Stampings.

Allegheny Steel Company

J. ALLAN ARMSTRONG
SOLICITING AGENT

9-252 General Motors Building
Detroit, Michigan

PHONE—EMPIRE 2273



Over one and one-half million Continental equipped cars, buses and trucks are in use today—a tribute of the critical public to the twenty-two years of Specialization back of the Continental Red Seal.

CONTINENTAL MOTORS CORPORATION
Detroit—Muskegon

The Largest Exclusive Motor Specialists in the World

Developing the Modern Motor Car

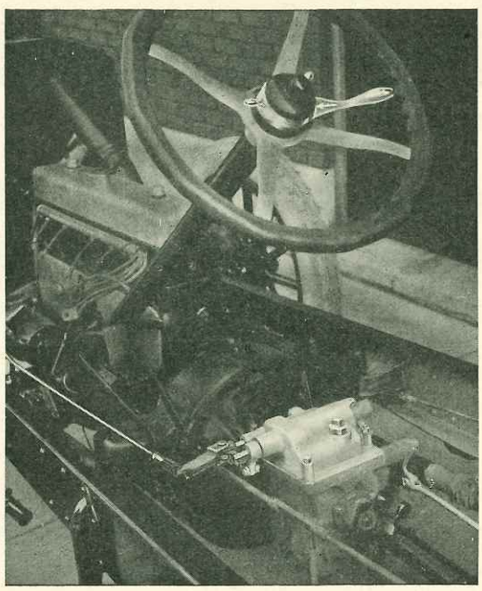
(*Continued from Page* 13)

most widely used brake in Europe.

Tests made at the Bureau of Standards have shown retardation rates as high as 13 feet per second with two-wheel brakes and 25 feet per second with four-wheel brakes. Even the lower rate is apt to be uncomfortable for passengers and may throw them from their seats, especially if they are not prepared for the sudden application. Railway practice indicates that it is better to release the brakes before the wheels come to a full stop. This also applies to automobiles.

The most striking exhibit at the recent Paris salon was undoubtedly the De Lavaud transmission at the Voisin stand. It may briefly be described as an infinitely variable system which automatically adjusts its ratio to the speed required; the transmission being low for starting and gradients, and raised for level grades without attention from the driver.

Here, indeed, seems a dream come true, which has long been the object of deep research and experiments. It is housed in the rear axle and dispenses with the usual change speed gear box and the bevel gearing, but retaining the clutch. It has a "Wableur" or swash plate anchored by a universal joint to a cage carried in the casing. This swash plate



Cutler-Hammer mechanical gear shift, mounted on transmission with pre-selection lever on steering wheel.

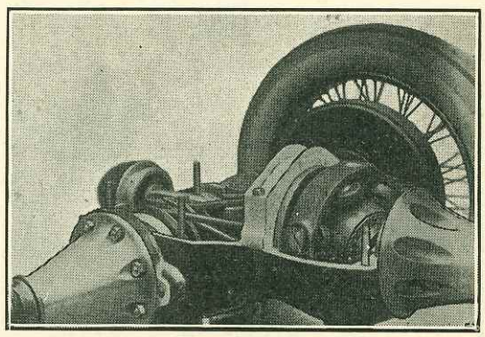
does not rotate, but wobbles like a coin at the end of its spin, so that connecting rods, attached to it, are moved the same amount as the wobble. A spring at the end of the shaft, regulates the amount of permissible wobble, which is experimentally predetermined for cars of different weight, thus automatically altering the angle of the "wableur", so that the stroke of the connecting rods is varied.

A mechanical efficiency of 98 per cent is claimed for this device and while it is not yet in production, the Voisin Company will equip all its models with the De Lavaud mechanism beginning next March. For reverse, a small epicyclic gear is used.

Other attempts to automatically vary the transmission ratio of automobiles have recently been made in England, but all these devices are still in the experimental stage and further developments are awaited with great interest among engineers of both hemispheres.

Considerable progress in the elimination of manual operation in gear shifting has also been made in America by the introduction of mechanical gear shifts, thus eliminating the change speed lever and the hand brake lever, and locating the emergency brake on the instrument board.

A small selector lever is conveniently located in the steering wheel, the actual changing of the gears being accomplished by the motion of the clutch pedal, under the floor, thus leaving a roomy front compartment. The principle of



Voisin rear axle with Lavaud automatic transmission.

general operation is substantially the same as on any existing mechanism, with the added advantage, however, that by means of the selector, other speeds may be predetermined, and held in readiness for any emergency that might occur by merely depressing the clutch pedal to its fullest extent.

The Cutler-Hammer Manufacturing Company is now equipped to furnish several standard makes of cars with their mechanical gear shift and as a tribute to the efficiency and reliability of their device, it may be added that several prominent car makers have decided to incorporate their mechanical gear shift as standard equipment of their cars.

Any device, which will tend to eliminate the certain degree of skill which is required in silently changing gears by hand and does it at higher speed without danger of stripping the gears, will prove a boon to the motoring public the world over.

FILMS AND TRADE SCHOOL

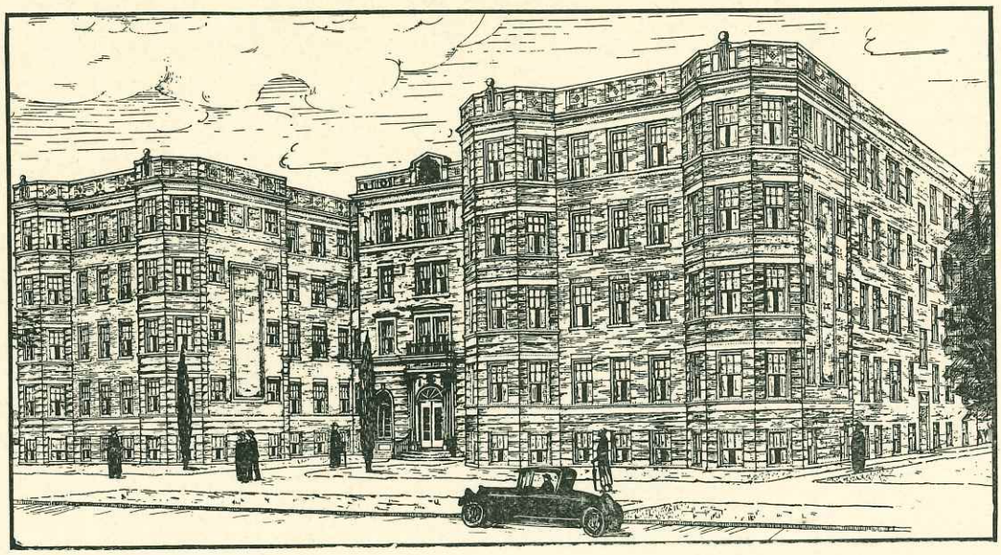
Several motion pictures are being shown at the Michigan State Automobile School this month. These are shown in open meetings on Thursday evenings and A. G. Zeller, president of the school, announces that visitors will be welcome. On January 3 the films "Shop Profits" and "Ask 'Em to Buy," produced by the Automotive Equipment Association of Chicago, were shown. The picture, "The Story of a Gasoline Engine," produced by the Bureau of Mines with the co-operation of the Continental Motors Corporation, was shown January 10.

The film production of the Northeast Electric Company, Rochester, New York; are being shown. Parts 1 and 2 of this, entitled, "Electricity in the Motor Car" and "Why the Generator Works and How the Starting Motor Starts," were shown on January 17; 3 and 4, entitled, "One for Two—The Starter-Generator" and "The Burning Question—Ignition," on January 24.

NO INCREASE FOR LUMBER

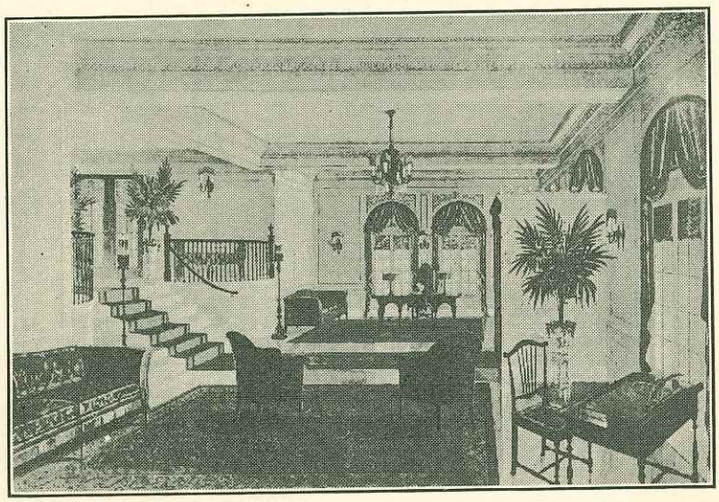
There will be no increase in the average selling price of lumber in 1924, according to a statement just issued by the Detroit Lumber Dealers' Association. A continuation of the good business experienced during 1923 is looked for and many dealers are enlarging their facilities with the idea of rendering better service. The past season was a very successful one for the trade in general and was featured by low prices, stabilization and excellent service.

EL VERANO APARTMENTS



20 TYLER AVE.
CONVENIENTLY LOCATED
TO
SECOND BOULEVARD BUSSES
AND WOODWARD AVE.

2, 3 and 4-Room
Furnished
Suites



$90 to $125
Including
Services

TO LIVE AT THE EL VERANO
ONE HAS ALL THE COMFORTS OF A HOME
WITH PLEASANT SURROUNDINGS

SEE MANAGER ON PREMISES

KerrECT DIRECT
Advertising

The Wisdom of Economy

MEN of the go-get-it and get-it-done type are scarce. Time is short. Are you using the valuable time of such workers to do things that could be done just as effectively by letters? Look around. Analyze. There's economy and great possibilities in the postage stamp. Use it to the advantage and profit of your institution!

The Final Cost

When the returns of a letter campaign are all in—that's when you realize the difference between the *expense* of low first-cost and the *economy* of low last-cost!

KerrProcessLetters meet the requirements of wise economy.

CHERRY 8202

KERR DETROIT LETTER COMPANY
Kerr Building East Fort & Beaubien
DETROIT

Stock Echange Sales for 1923

LISTED STOCKS	No. Shares	High	Low
Am. Lt. & Trac., com....	3,308	139	109
Arctic Ice Cream, com...	1,789	16	11¼
Auto Body, com.....	9,210	4⅜	1
Bower Roller Bearing....	658	9⅛	8
Charcoal Iron Co., com..	36,508	3⅛	40c
Do., pfd.	37,913	4½	1
Cities Service, com.....	4	162	162
Columbia Motors	127,465	4	11-16
Columbia Sugar	8,415	7¼	5⅛
Com. Pr., Ry. & Lt., com..	359	36	27
Do., pfd.	10	66¾	66¾
Continental Motors	329,833	12	5¼
Detroit Br. & Malle. Wks.	20	92	92
D. & C. Navigation Co...	720	82	73½
Detroit Creamery	9,673½	22½	18
Detroit Edison	16,841	111	100½
Durant Motors, Inc.....	450	32	25¾
Edmunds & Jones, com..	39,122	36¼	26
Do., pfd.	514	98	90
Federal Truck	9,862	29¼	19¾
Ford of Canada.....	5,979	466	390
Gen. Al. & Br., com.....	3,865	11	5
General Motors	3,263	17⅝	13⅞
Gen. Necessities, com....	8,138	8⅞	7½
Gladys Belle Oil, com....	451,405	27c	04c
Do., pfd.	196,960	46c	07c
a-Hall Lamp Co. (Old Stk)	11,355	30½	24
Do. (New Stock).....	215	14	13¼
Hanna Furnace, com.....	474	10⅛	10⅛
Hayes Mfg. Co., com....	64,657	5⅞	1½
Holland-St. Louis Sugar..	565	6¼	5⅞
Hoover Steel Ball.....	4,370	13	9¾
Mexican Crude Rubber...	456	12¼	12
Mich. Drop Forge, com...	25	25¼	23
Mich. Stamping, com....	5,405	34¾	16⅞
Mich. Sugar, com.....	44,485	6⅜	4 9-16
Do., pfd.	3,180	8⅝	7
Miles-Detroit Theater ...	167	28⅛	28⅛
Motor Products	16,530	177	91
Motor Wheel, com.....	39,989	13	8⅞
Murray Mfg., com.....	44,202	23¾	11⅝
National Grocer, com....	7,430	7⅞	6¼
Do., pfd.	21	85	85
Noble Oil & Gas, com....	95,935	78c	20c
Northern Company, com.	20	100	99½
Packard Motor, com.....	272,058	15½	9⅞
Do., pfd.	8,468	100	90¼
b-Paige-Det. com. (Old Stock.)	202,251	25	13½
Paige-Detroit, com. (New Stock.)	3,572½	16	14½
c-Parke, Davis & Co....	9,079	85½	70
Penberthy Inj,, pfd.....	180	95	91
Reo Motor	325,056	21	13⅝
Reynolds Spring, com...	300	25	25
Do., pfd., "A".....	519	95½	76
River Raisin Paper, com	6,215	11¼	8½
Scotten-Dillon Co.	18,489	33	30
Timken-Det. Axle, com...	231,598	13½	5½
Do., pfd.	1,623	96	78
Truscon Steel, com.....	1,535	21	16¼
Do., pfd.	45	10	9⅞
Union Mortgage, pfd.....	27,294	6½	1
U. S. Radiator, com.....	628	85	51
Do., pfd.	776	98	90
Western Knitting Mills..	1,355	9½	25c
White Star Line.....	90	20	20
Wolv. Portland Cement..	15,695	6	2¾
Total Sales Listed Stocks for 1923.....2,768,592			

LISTED BANKS			
American State	244	195	170
Bank of Detroit.....	199	145	130
Detroit Savings	10	265	265
Dime Savings	25	300	299
First National	216	282½	264
First State	123	172	125
Highland Park State.....	100	219	212
Merchants National	111	200	200
Nat'l. Bank of Commerce	196	250	250
Peninsular State	29	214	213
Peoples State	135	355	345
American Loan & Trust..	20	108	101
Guaranty Trust	10	160	160
Security Trust	10	316	316
Union Trust	64	175	175
Total Sales Listed Banks for 1923.....	1,492		

LISTED BONDS			
Det. Ed. 1st & ref. 5s, '40.$	1,000	95½	95½
Det. Ed. deb. 7s, 1928....	2,200	107¾	104½
Det. Ed. deb. 7s, 1929....	3,100	108¼	104
Det. Ed. deb. 7s, 1930....	12,800	108½	102½
Det. Ed. deb. 8s. 1931....	30,600	110⅝	106
Det. Ed. deb. 6s, 1931....	3,700	103	100
Det. Rock Salt 6s, 1923..	1,000	90	90
East. Mich. Ed. 5s, 1931..	3,000	98¼	97⅝
Motor Products deb.....	205,720	95½	93
Northern Co. 8s, 1933....	1,500	104	102
Total Sales Listed Bonds for 1923.....$ 264,620			

RIGHTS			
Detroit Creamery Rights	5,818	2½	1 11-16
Detroit Edison Rights...	46,258	45c	01c
Reynolds Spring Rights..	25	9⅝	9⅝
First State Bank Rights	369	15	5
Union Trust Rights.....	108	55	50
Total Rights for 1923..	52,578		

UNLISTED STOCKS			
Belle Isle Coliseum.....	100	4⅝	4⅝
Briggs Mfg Co.....	194	40	34
Clayton Lambert	50	9⅛	9⅛
Com. State Sav. Bank...	30	114	114
Com.-Fed. Sav. Bank.....	10	129	129
Continental Bank	5	96	96
Detroit Mortgage, com..	36,434	2	05c
Do., pfd.	17,296½	4⅞	95c
Detroit Motor Bus.....	5,087	32	14
Federal Discount	5,408	6¼	3¼
Great Lakes Engineering	200	13	13
Invader Oil	74,550	34c	08c
Jewett, Bigelow & Brooks	350	2⅛	1⅝
Kay Copper	3,000	13c	13c
Liberty Motors, com.....	1,430	25c	10c
Do., pfd.	10	3	3
Lincoln Motors	40	1	1
Michigan Copper & Brass (Old Stock)	100	20¼	20¼
Michigan Copper & Brass (New Stock)	8,886	14½	10½
Michigan Finance	115	7⅝	6¼
Mich. Smelting & Ref...	1,600	14¼	13¾
Mich. Stamping, pfd.....	78	94½	90¼
Minnesota Sugar	237	14	10
Motor Products, com. (New Stock)	6,594	40	24¼
Do., pfd. (New Stock).	1,204	46½	41½
Motor Wheel, pfd.....	303	102	98
Noble Oil & Gas, com....	873,606	29c	05c
Paige-Det. Motor, pfd....	2,363	89	80½
Parke, Davis & Co.....	111	79¾	77¾
Peoples Mortgage	190	1½	1½
Rickenbacker Motor	6,470	9⅝	8
Union Mortgage, com....	10,382	1.30	08c
U. S. Cities	1,870	13	6¾

Total Unlisted Sales for 1923 .....1,058,303½	
Total listed sales.....2,768,592	
Total listed banks..... 1,492	
Total unlisted sales.....1,058,303	
	3,828,387

a-Hall Lamp Co. Exchange of par value old stock for no par new stock on basis of 2 shares of new for 1 of old, December 24, 1923.

b-Paige-Detroit Motor, com. declared 50 per cent stock dividend payable 1-2-24 to stockholders of record at close of business 12-15-23.

c-Parke, Davis Co. stock removed from listed stocks to unlisted December 15, 1923.

WILL DISTRIBUTE ASSETS

The trustee of the bankrupt Saxon Motor Car Corporation has announced the filing of his final account showing a balance on hand of $17,953.37 for distribution. This matter will come up for consideration at the office of G. A. Marston and P. H. King, referees in bankruptcy, 419 West Fort street, Detroit, on January 23.

RATE HEARING JAN. 22

The Michigan Public Utilities Commission will begin hearing Tuesday, January 22, the passenger rate cases for the Michigan Electric Railway, Michigan Railroad Company, Michigan Southern and other allied interurban lines which operate in central Michigan. The hearings will be held on motion of the commission.

Under the Glaspie act of 1921 the commission may hear and determine the proper passenger rates after obtaining the property valuation of the interurban lines. Until such time the roads are allowed to charge fares on the basis of the gross annual earnings per mile. On this basis these roads, except the Michigan Southern, since the law went into effect have been charging 3 cents a mile; the Michigan Southern charging 2 cents a mile. Apparently satisfied, the interurban lines have never asked for the fixing of permanent rates. However, the commission has recently obtained the property valuations, which, it is understood, exceed a total of $20 000,000. The maximum rate which may be charged under the Glaspie law, so if there are any changes they will be downward.

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New Production Records Likely

(Continued from Page 24)

Production of the Packard Motor Car Company, Detroit, this year is expected to be better than 30,000.

The Dort Motor Car Company, Flint, according to reports hopes to make more than 30,000 Dort cars.

The plans of the Maxwell-Chalmers Motor Corporation, Detroit, have not been made public, but according to rumors an output of 60,000 to 75,000 Maxwell and Chalmers cars is contemplated.

The recently organized Chrysler Motor Corporation, of Detroit, the associates of which are also the heads of the Maxwell-Chalmers organization, is said to be planning an output of more than 15,000 Chrysler cars.

Then there is the W. C. Durant group, which comprises the Star, Durant, Locomobile, Princeton, Flint, Eagle and the Mason, the latter a truck. An itemized statement cannot be given, but we may state that an aggregate of 290,000 to 300,000 cars is expected to be produced and that more than half will be Stars. Inasmuch as some of the Durant products have just been started, as for instance the Flint, Eagle and Princeton, and as the various plants or units have a production capacity of more than 600,000 cars, it can readily be seen that Durant activities may in time become one of the most important factors in production.

In addition to these car makers there are 20 or 25 others which will build from 3,500 to 20,000 cars or more, but no data is available to warrant a special mention. This group includes Anderson, Stutz, Stearns, Gray, Peerless, Velie, Elcar, Haynes, Apperson, Rollin, Pierce-Arrow, Columbia, Auburn, Marmon, Cole and others.

FIRE DAMAGE SLIGHT

Reconstruction operations have already been started on the foundry building of the Monroe Steel Castings Company, Monroe, which was slightly damaged by fire January 8. Production operations were held up only a few days. Reports that the company might not rebuild in Monroe were without foundation.

ICE CREAM FIRMS MERGED

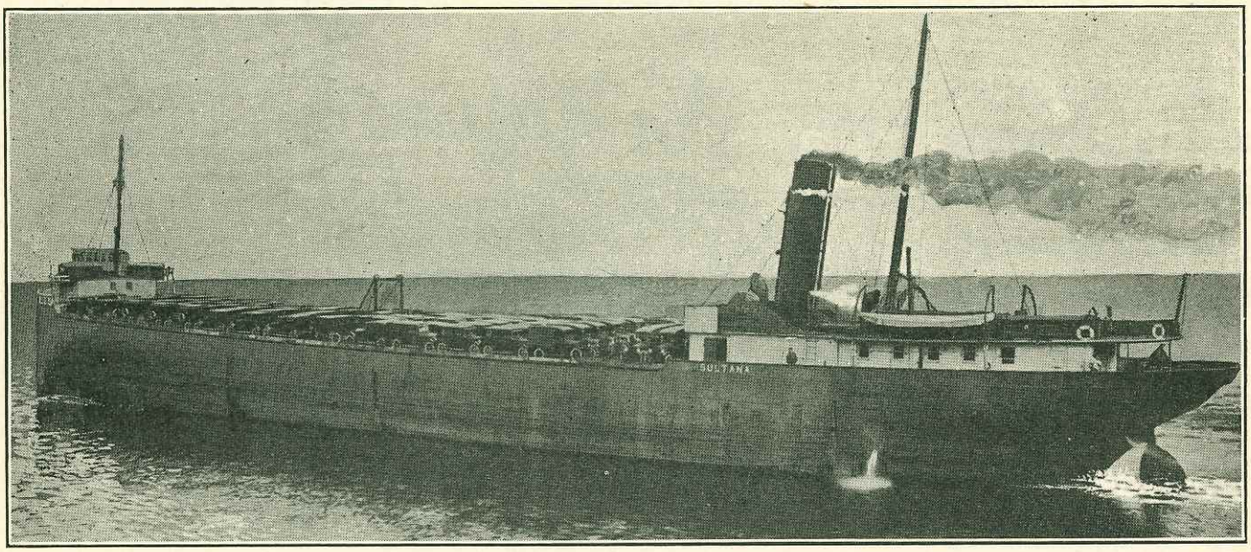
The Freeman Dairy Company, of Flint, a $900,000 corporation, has purchased the Lansing plant of the Davis Ice Cream Company and adjacent land. Possession is to be given at once. Additions will be built, so the Freeman company may distribute its products from the Lansing plant throughout central Michigan, south of the Ohio line.

DETROIT FOURTH IN BUILDING

Total building operations throughout the United States in 1923 were approximately $5,500,000,000, making it the greatest building year in the history of the country. These activities exceeded the previous record-breaking year of 1922 by something less than 25 per cent, according to S. W. Straus & Company. The 25 leading cities, representing a population of 20 per cent of the whole country, absorbed 50 per cent of the nation's building activities during the year.

The 25 leading cities of the country ranked in permits issued for the year as follows: New York, $792,911,559; Chicago, $329,604,317; Los Angeles, $182,133,181; Detroit, $129,662,711; Philadelphia, $123,511,935; Cleveland, $69,390,540; Washington, D. C., $49,623,605; San Francisco, $49,594,011; Baltimore, $46,988,002; St. Louis, $41,443,755; Boston, $40,626,352; Milwaukee, $39,007,845; St. Paul, $35,735,627; Pittsburgh $32,915,312; Minneapolis, $32,315,545; Newark, $32,226,106; Buffalo, $27,907,000; Oakland, Cal., $27,628,897; Indianapolis, $27,307,279; Cincinnati, $27,160,520; Atlanta, $27,094,498; Portland, Ore., $25,247,136; Kansas City, Mo., $24,841,756; Long Beach, Cal., $23,693,580, and Seattle, $22,482,678.

Left Detroit Dec. 8, 1923, Arrived at Milwaukee December 10, 1923, Loaded With 334 Cars



Ship Automobiles by Boat

Save Time and Money

The shipping of automobiles by rail has long been one of the factors that contribute to loss of time and money. Inasmuch as all motor cars are shipped F. O. B. Detroit, this extra shipping charge is borne by the buyer.

The fastest and most economical way to ship automobiles is by the Nicholson Transit Company. This Company is a local concern, run by local men with the welfare of Detroit's motor industry at heart.

Shipping by boat involves no loss of time in loading or unloading. The cars are driven on and off the boats, which also eliminates all cost of handling.

Boats run between Detroit, Milwaukee, Kenosha, Chicago, Cleveland, Toledo and Buffalo. Two boats have a capacity of 350 cars each and two have a 200-car capacity. It takes but 8 or 9 hours to Cleveland and only 48 to Chicago.

Motor car manufacturers are invited to try our service, for besides being quicker, they will also find it 100% cheaper than rail.

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Factory Lighting

A well-lighted factory presently becomes poorly-lighted if close attention is not given to the matter of maintenance.

The useful life of a lamp is approximately 1,000 hours (of burning). Further use means rapidly diminishing efficiency. Lamps giving only from 40 to 50 per cent of their normal candle-power are numerous in otherwise well appointed factories.

Shades and reflectors need frequent inspection. Accumulation of dust may waste from 20 to 30 per cent of the light.

Walls and ceilings, when grimy, may absorb from 50 to 60 per cent of the light falling on them.

Call Main 4300
(Ask for Sales Department)

The Detroit Edison Company

NEW MICHIGAN CORPORATIONS

FOR WEEK ENDED JANUARY 12, 1924

Fitz-Pat Products Corporation, Battle Creek; the manufacture and sale of wood products and sheet metal products; Fred Wells, 23 Main street west, Loren J. Kuehnle, Burritt Hamilton, Battle Creek .....
1,000

Vanderwerp & Schrier Company, Muskegon; to carry on a general real estate and insurance agency business; George D. Vanderwerp, 30 Peck, Chris Schrier, William A. Vanderwerp, Muskegon .....

Universal Cleaning Service, Detroit; to do window cleaning, janitor service and outside cleaning; George P. Warrick, 7210 Gratiot ave., Edna Warrick, Herbert E. Adams, Detroit....

Colonial Oil Company of Michigan, Grand Rapids; to deal generally in petroleum oils and storage tanks; W. L. Kimerly, R. F. D. No. 5, W. Leonard road, John M. Dunham, Fred W. Kramer, Grand Rapids, 45,000 shares non-par stock and.....
50,000

Independent Investment Association, Detroit; to loan money to members of the association who are residents of Michigan; Ben Bronstein, 219 Harmon ave., Abraham Broner, Morris Citron, Detroit .....

Mason-Chevrolet Sales Company, Ludington; to conduct a general garage and car storage business; J. Frank Wood, 609 Union Bank bldg., Muskegon; Robert L. Jacobson, Frank R. Miller, Ludington .....

Excello Piston Ring Company, Detroit; to manufacture and sale of piston rings; John F. Watt, 13925 Grand River ave., John Coromilas, George B. Townsend, Detroit.....

American Rubber Products Company, Hamtramck; to deal in and with all kinds of rubber products; Nels L. Olson, 246 Massachusetts ave., Ina Olson, Highland Park; William H. Stafford, Milwaukee, Wis.....
100,000

Lansing Typesetting Company, Lansing; to maintain and operate a plant of machinery for the production of printing; Ernest B. Titus, 612 Kohler Court, Fred T. Wessels, Ketha S. Titus, Lansing .....

Zaka Coffee Company, Detroit; roasting, grinding and selling coffee, tea and spices; Armin A. Darmstaetter, 345 Arden Park, Thomas J. Thorpe, Carl J. Darmstaetter, Detroit.....

Johnson Hardware Company, Oxford; to conduct a general retail hardware store; Arch L. Johnson, Belle L. Johnson, Ezra Gardner, Oxford.....

Detroit Restaurant Fixture Company, Detroit; to deal in restaurant and store fixtures; James Syrios, 451 Monroe ave., William Thompson, Peter Zalants, Detroit .....

Oil & Electric Heater Company, Detroit; to deal in heating and electrical devices; David M. Kerr, 8100 E. Jefferson, Vernon E. Vining, Earle W. Bagg, Detroit .....

Ferd H. Smith, Inc., Bay City; to engage in the harness and leather supply business; Anna M. Smith, 1412 Ninth st., William M. Smith, Edward C. Smith, Bay City.....

Cut Rate Merchandising Company, Detroit; to engage in all kinds of mercantile and trading business; Maurice M. Silverstone, 13916 Woodward ave., Sol. Cohen, Selma Silverstone, Detroit

Fort Eureka Land Company, Detroit; to deal in real estate; Gaylord W. Norton, 691 Merrick ave., Edward J. Lieber, Ernest L. Dalton, Detroit....

Danaher Realty Company, Detroit; to deal in real estate; Ray E. Danaher, 508 Griswold st., James E. Danaher, Paul J. Brown, Detroit.....

Elmwood Realty Company, Jackson; to conduct and carry on a general real estate business; Clayton W. Mudgett, 115 S. West ave., Fred E. Curtis, Fred L. Curtis, Jackson.....

Genesee Motor Sales, Flint; to deal in automobiles and parts; George H. McVannel, 803 East st., Otto P. Graff, Clarence O. Hetchler, Flint.....

The Kobacker Furniture Company of Michigan, Flint; manufacturing, purchasing and selling furniture; Maurice Rosenblum, 218 S. Saginaw st., Eli Rosenblum, Fannie Rosenblum, Flint

The Renier Company, Inc., Detroit; to do a general contracting business; Henry Verkinderen, 5321 Seven-Mile road east, Julius Renier, Camillus J. Renier, Detroit 25,000

Radio Fuel Company (F.), Morgantown, W. Va.; Richard Price, Central State Bank bldg., Jackson..... 50,000

The American Thread Company (F.), New York, N. Y.; Fred M. Cutter, Ann Arbor 18,000,000

Gray & Lampel, Inc. (F.), New York; Henry F. George, 71 Delaware ave., Book bldg., Detroit, 900 non-par shares and 40,000

Albee & Godfrey Company, Inc. (F.), New York; John Gebhardt, 1124 Book bldg., Detroit 10,000

Peter Clark, Inc. (F.), New York; Rolland J. Cleland, 813-17 Michigan Trust bldg., Grand Rapids..... 250,000

Huron Sales Corporation, Capitol Theater bldg., Detroit; conduct sales on commission basis of merchandise; Charles S. Cole, 830 Penobscot bldg., Angus McLean, S. V. Taylor, Detroit; 1,500 non-par shares and.....
2,000 5,000

Louis Brawer Company, 5424 Michigan ave., Detroit; conduct stores for dealing retail hosiery, notions, merchandise; Louis and Dora Brawer, 650 Holbrook; W. B. Isenberg, Detroit..
30,000 25,000

Redfield & Schuett, 526 Murphy bldg., Detroit; real estate, land contracts, construction, building materials; Harold Redfield, 4827 Second blvd., Walter T. Schuett, Donald M. Woodruff, Detroit .....
50,000 50,000

Demountable Batteries Corporation of Michigan, 3932 Cass ave., Detroit; manufacture, sale electric batteries, motor vehicle parts; Louis J. Hoffman, George R. Cooper, 630 Charlotte ave., William A. Boos, Detroit.....
15,000 150,000

J. N. Fauver Company, Incorporated, 31 Brady st., Detroit; sale, servicing auto equipment, general sales; J. N. and Margaret Fauver, 90 Florence ave., John J. Gafill, Detroit.....
20,000 15,000

Telegraph Road Land Company, 915 Hammond bldg., Detroit; real estate; Robert Herndon, Irvin Long, Frederick A. Carey, Detroit.....
100,000 40,000

Mack & St. Jean Garage, 11244 Mack ave., Detroit; deal, exchange new and used autos, accessories, repair, refurnish, refit; Robert B. and Mary Ross, Harold Gertin, Detroit.....
10,000 12,000

The Furnace Engineering Company, 315 Adams ave. East, Detroit; manufacture, sell, contract, install heating apparatus; John L. Fuller, 1745 Chicago blvd., Clarence Dorr, Shelly Laffrey, J. E. Lansing, Detroit.....
75,000 10,000

Methow Valley Development Company, 1502 Ford bldg., Detroit; deal, hold mineral lands, open, operate mines, locate mill and town sites, water rights in Okanogen, Washington; Laurence M. Sprague, 1722 Seward ave., LeRoy C. Lyon, Howell Van Auken, Detroit .....
10,000 150,000 50,000

The Murray Products Company, General Motors bldg., Detroit; manufacture, sale metal products; J. R. Murray, 1182 Boston blvd., Detroit; C. W. and F. J. Hannon, Cleveland, O.; 15,000 non-par shares and.....
25,000 30,000

The Rollin Motors Company (F.), Cleveland, O.; S. A. McGonigal, 9128 Woodward ave., Detroit, 100,000 non-par shares.
50,000

CAPITAL INCREASES

Bilt-Well Products Company, Bay City, from $10,000 to..... 25,000

Wolverine Knitting Mills, Bay City, from $50,000 to.....
10,000 100,000

Churchill Printing Company, Petoskey, from $20,000 to..... 40,000

Booth Publishing Company, Detroit, from $5,000,000 to.....
25,000 6,000,000

Westmore Realty Company, Detroit, from $10,000 to..... 15,000

Wire Products Corporation, Ann Arbor, from $25,000 and 8,000 shares non-par stock to $40,000 and 16,000 shares non-par stock.
150,000

Kuhman Electric Company, from $150,000 to 200,000

C. H. Robinson Company, Grand Forks, N. D.-Detroit, from $10 000 to.....
5,000 100,000

The Coulter Construction Company, Detroit, from $5,000 to..... 25,000

Holland Maid Company, Holland, from $400,000 to .....
150,000 600,000

Stockbridge Improvement Company, Stockbridge, from $4.000 to..... 7,000

J. L. Hudson Company, Detroit, from $8,000,000 to 12,000,000
200,000

Albion Lumber Company, Albion, from $20,000 to 60,000

Peoples' Steam Laundry Company, Muskegon, from $10,000 to..... 50,000

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RIGHT now—at this time of year—there is a new experience waiting for the car owner who has found winter driving an expensive business.

Equipped with U. S. Royal Cords and U.S. Royal Tubes the next few months will show him how thousands of men are getting the same economical tire service the year 'round.

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Combine these two units now. They will give any car owner a new angle on tire values.

United States Rubber Company

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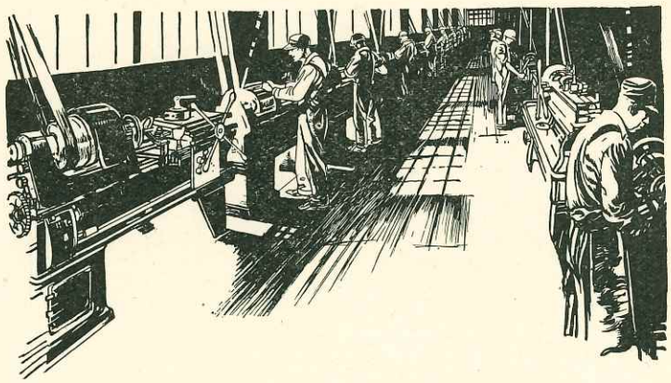

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STANDING beside a battery of busy machines in your plant is an idle piece of equipment. The operator failed to report for work this morning; and as a result of his absence you must suffer a loss.

This loss is more than a mere cut in production. It is an actual cash loss of part of your fixed overhead—of your supervision costs and of the many other expense factors that must continue whether an employee is working or is absent.

Every day your time-reports show unnecessary absenteeism. Every day, consciously or unwittingly, you are paying toll to one of the controllable factors that are causing serious losses in your plant. Why?

Nearly every case of unwarranted absenteeism can be traced to some form of misunderstanding, ignorance or poor judgment on someone's part. Whatever the cause, we can engage to correct it—with great profit to employee and employer.

Executives, everywhere, have evidenced unusual interest in our booklet, "Stopping Payroll Losses." We will be glad to send any executive a copy, gratis. Simply write us on your business stationery. Please address Dept. U-1.

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C. A. Pfeffer and Associates
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Darby Richardson
Detroit

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Manager of Exhibits
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Detroit

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General Exposition Manager
Lou Brayton
Detroit

DETROIT, MICHIGAN
December 3,1923.

Mr. Ira W. Welbon, Secy-Treas.,
Michigan Manufacturer & Financial Record,
Detroit Michigan.

Dear Mr. Welbon:

It is gratifying to the Michigan Industrial Exposition of 1924 and to myself as President to learn of your definite plans for publicity in its behalf.

The Michigan Manufacturer and Financial Record, the only paper of its kind in the State, can do more than any other publication towards arousing the business spirit and sentiment of Michigan Manufacturers, and having them give their earnest co-operation to and offer proper exhibits at the Exposition.

The Exposition appreciates your creating a new weekly department from now until the Exposition closes to cover the news activities of the enterprise.

The daily newspapers will give great help in their own way and with their strong patriotic interest, but their message will naturally be to the untechnical, while yours must be to the technical field and those directly interested in manufacturing.

May I also extend to you, my appreciation of the thoroughness with which your paper will present the industrial history of Michigan in the "Book of Michigan Industry," which the management of the Exposition has commissioned you to prepare.

Please feel free to call on the executive heads of the Exposition for all material that will aid you in the preparation of the book and in the provision for its general distribution.

Yours very truly,

Lyford M. Moore

LMM : LPT President.

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5080
5081
5082

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5081
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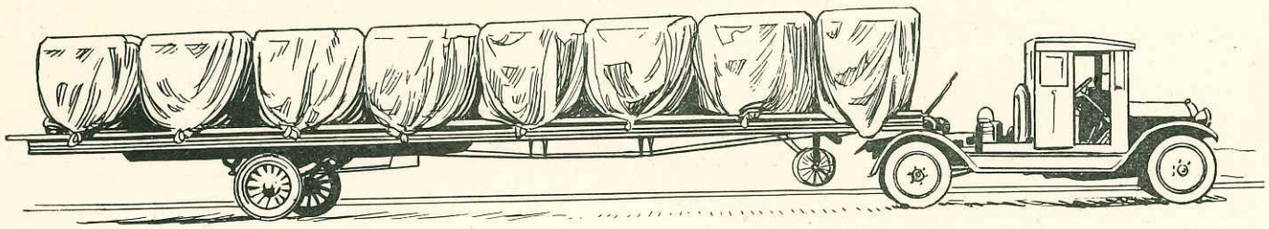

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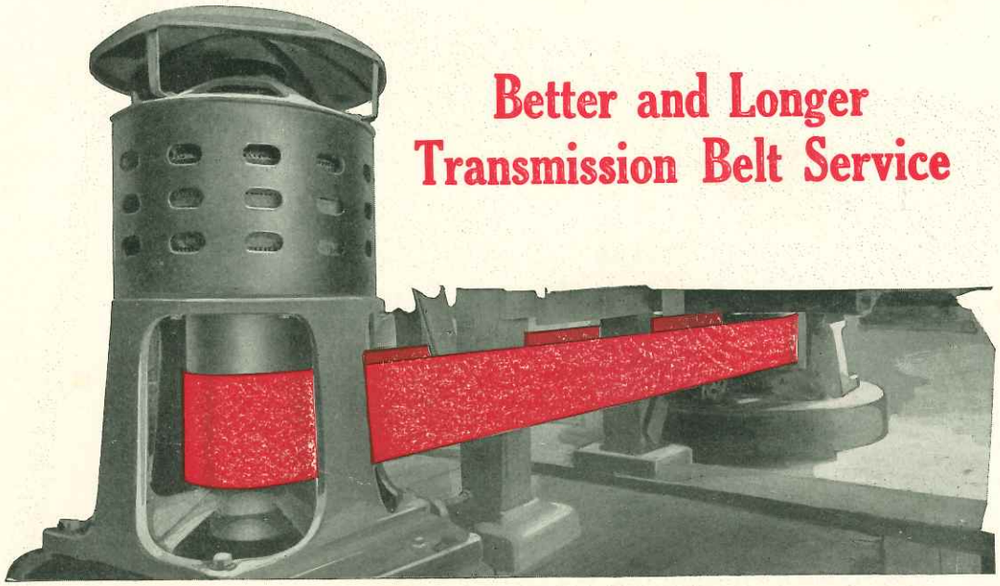

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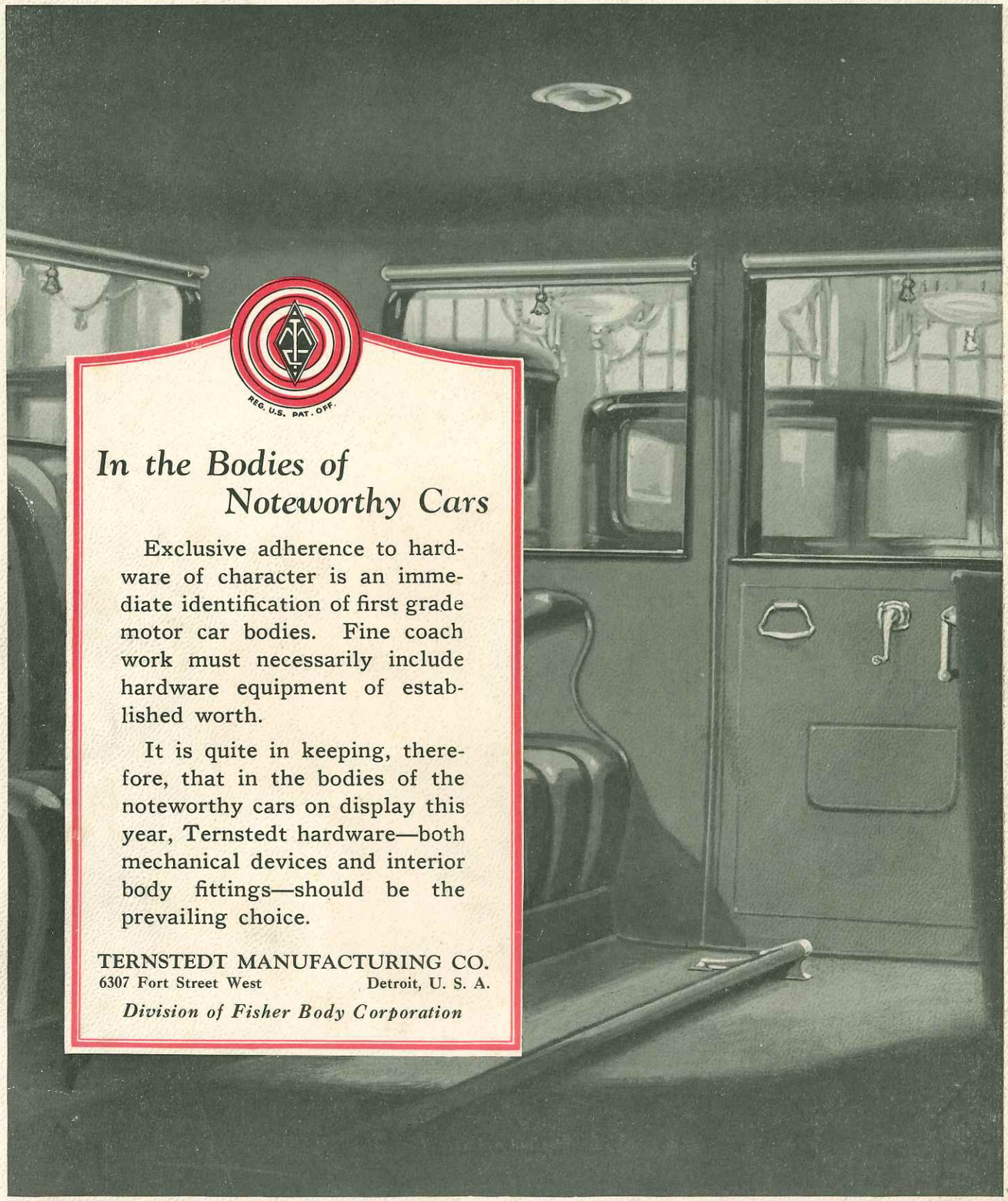

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